

MONTANA-DAKOTA UTILITIES CO.

Before the Public Service Commission of North Dakota

Case No. PU-22-\_\_\_\_

Direct Testimony

Of

Darcy J. Neigum

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

2 A. My name is Darcy J. Neigum and my business address is 400  
3 North Fourth Street, Bismarck, North Dakota 58501.

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

5 A. I am the Director of System Operations and Planning for Montana-  
6 Dakota Utilities Co. (Montana-Dakota).

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

9 A. I have managerial responsibility for overseeing the day-to-day  
10 operations of the Company's electric control center and system operations  
11 and planning and communication engineering departments.

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

13 A. I hold a bachelor's degree in Electrical and Electronics Engineering  
14 from North Dakota State University as well as a master's degree in  
15 Business Administration from the University of Mary. I have worked for

1 Montana-Dakota Utilities Co. and the MDU Resource Group, Inc. for  
2 twenty-six years with the last thirteen years managing the system  
3 operations & planning department for Montana-Dakota.

4 **Q. What is the purpose of your testimony in this proceeding?**

5 A. I will provide support for the Company's North Dakota electric rate  
6 case application regarding the Company's current electric load forecast  
7 and an overview of the Company's two-way radio replacement project.

8 **Q. What is the result of Montana-Dakota's latest electric customer long-  
9 term load forecast?**

10 A. Montana-Dakota completes an update to its long-term electric  
11 forecast every year with the preliminary 2022-2041 forecast completed in  
12 September of 2021. The long-term electric load forecast is a twenty-year  
13 forecast of annual customer electric sales volumes along with a forecast of  
14 annual summer and winter customer peak demand.

15 The long-term electric sales forecast is developed separately by  
16 state (i.e. Montana, North Dakota and South Dakota) for the following  
17 customer classes; residential, small commercial and industrial, large  
18 commercial and industrial, street lighting, and miscellaneous; and then  
19 rolled into the Integrated System sales forecast. Seasonal peak demand  
20 forecasts are developed on an Integrated System basis and then allocated  
21 back to the states.

1 **Q. What were the results of the September 2021 sales forecast?**

2 A. Total Integrated System sales in the new forecast are projected to  
3 grow at a five-year average rate of 1.06% per year for 2021-2026  
4 compared to the five-year historic average growth rate of 1.12% from  
5 2015-2020. North Dakota's electric sales are forecasted to grow at 1.18%  
6 per year for 2021-2026 compared to a historic average growth rate of  
7 0.24% per year from 2015-2020.

8 Overall, the Integrated System customer winter and summer  
9 demand is forecasted to grow at just over one percent per year with the  
10 Company remaining a summer peaking electric utility.

11 The five-year average sales forecast for North Dakota electric  
12 customers are:

Residential	0.36%
Small C&I	3.47%
Large C&I	0.08%
Street Lighting	0.00%
Miscellaneous	0.86%

13

14 It should also be noted that annual usage for electric street lighting  
15 dropped by 30 percent from 2019-2020 with the installation of LED street  
16 lights by the Company.

17 **Q. Can you describe the Company's existing two-way radio system?**

18 A. Montana-Dakota and Great Plains Natural Gas have a two-way

1 radio system which covers parts of five states serving both gas and  
2 electric customers. The current Montana-Dakota system was designed  
3 and built in the 1970s and 80s and comprises 70 radio towers, 350 mobile  
4 users, and 20 office base consoles and 30 remote handheld units. The  
5 system is obsolete and radio repeater towers are linked together by  
6 telephone interconnect systems which users have to key or dial codes and  
7 telephone numbers to hop from repeater tower to repeater tower to  
8 communicate. This creates challenges for effectively communicating with  
9 employees in not only normal conditions but especially under emergency  
10 conditions when employees may be working in different parts of the  
11 Company's service territory and are not familiar with the nearest radio  
12 tower location or area radio frequency.

13 **Q. What type of replacement is the Company planning to make to its**  
14 **two-way radio system?**

15 A. The Company is looking to install a new trunked 450 MHz radio  
16 system which allows users to move seamlessly across the Company's  
17 service territory and connect with other employees without the need for  
18 telephone interconnect equipment. This system design ensures ease of  
19 use and one to many radio conversations during routine operations and  
20 emergencies. The system also has the ability to track the location of users  
21 of the two-way radio system for scheduling and emergency dispatching.

1 The Company is working with the State of North Dakota to utilize existing  
2 state-controlled sites and towers which are used for the State's emergency  
3 radio system. This co-location allows for use of towers and locations that  
4 have existing fiber optic communications on-site via Dakota Carrier  
5 Network and eliminates the needs for multiple new microwave hops to  
6 connect tower sites together. The Company is in the second year of  
7 engineering designs for the project and is issuing a request for proposal to  
8 vendors the summer of 2022 with installations to begin the end of 2022.

9 **Q. What alternatives did the Company consider as part of its**  
10 **determination to replace its two-way radio system?**

11 A. The alternative options that Company considered are:

- 12 1. Updating the existing radio system; and
- 13 2. Utilizing prioritized cellular communications like AT&T's First Net  
14 system.

15 Updating the Company's two-way radio system would still rely on  
16 our existing radio frequencies along with newer repeater equipment and  
17 telephone interconnects. This configuration today is hard for employees to  
18 use and does not lend itself to movement throughout the Company's  
19 service territory limiting its effectiveness during normal communications.  
20 The Company believes the effectiveness of updating the existing radio  
21 system would be further reduced during times of emergencies due the

1 limitations of accessing area repeater sites and limitations of sharing  
2 communications within a fixed area of radio coverage accessible only by  
3 an individual repeater tower.

4 Cellular and AT&T's First Net relies on commercial cellular towers  
5 and systems which can become overloaded in emergencies. During an  
6 emergency, 911 operators can instruct AT&T First Net to remove non-  
7 emergency personnel, like Montana-Dakota, from its prioritized network,  
8 potentially leaving Montana-Dakota in a situation where employees cannot  
9 communicate during emergencies. Furthermore, cell towers currently have  
10 less range than two-way radio systems. This lack of coverage creates  
11 communication issues for the Company with its employees across various  
12 service territories, especially in rural areas.

13 **Q. What is expected cost of the two-way radio upgrade project?**

14 A. The cost of the two-way radio project, allocated to the North Dakota  
15 Electric Jurisdiction, is \$2,432,044 in 2022 (as shown as FP-316490 and  
16 FP-316128 on Statement B, Schedule B-2, page 5 and 6) and \$3,184,331  
17 in 2023 (as shown as FP-316490 and FP-316128 on Statement B,  
18 Schedule B-2, page 9 and 11).

19 **Q. Does this conclude your direct testimony?**

20 A. Yes, it does