

MONTANA-DAKOTA UTILITIES CO.

Before the South Dakota Public Utilities Commission

Docket No. EL23-\_\_\_\_

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 department. The system operations and planning  
12 department is responsible for electric resource planning and expansion  
13 studies for the Company.

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

2 A. I hold a bachelor's degree in Electrical and Electronics Engineering  
3 from North Dakota State University as well as a master's degree in  
4 Business Administration from the University of Mary. My work experience  
5 includes four years as a nuclear plant engineer; three years of experience  
6 as a coal-fired power plant engineer; eleven years of generation  
7 development and operational responsibilities for coal-fired, gas-fired, and  
8 renewable generation sources; and fifteen years of experience managing  
9 the system operations & planning department for Montana-Dakota.

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

11 A. Yes, I have testified before this Commission, the Public Service  
12 Commissions of North Dakota, Montana, and Wyoming, and the Federal  
13 Energy Regulatory Commission.

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

15 A. I will provide support for the Company's decision to construct the  
16 Heskett Unit IV simple cycle natural gas-fired combustion turbine (Heskett  
17 IV) as a generation resource for the Company's integrated electric system.

18 I will provide support for the Company's retirement analysis for  
19 Lewis & Clark Unit I and Heskett Units I & II included in the Company's  
20 2019 Integrated Resource Plan (2019 IRP).

1                    Finally, I will provide support for a power purchase agreement  
2                    (PPA) of capacity and energy.

3                    **Generation Planning**

4                    **Q.     How will Montana-Dakota utilize Heskett IV to meet customer needs?**

5                    A.                    Heskett IV is a least cost resource that will be used to meet  
6                    customer peak demand requirements following the retirement of Lewis &  
7                    Clark I and Heskett I & II coal-fired generating stations.

8                    **Q.     What were the plant closure dates for Lewis & Clark Unit I and  
9                    Heskett Unit I & II?**

10                  A.                    Montana-Dakota announced on February 15, 2019 that it would be  
11                  closing the Lewis & Clark I coal-fired station at the end of its coal supply  
12                  agreement at the end of 2020; and the Heskett I & II coal-fired generation  
13                  units at the end of their coal supply agreement at the end of 2021. These  
14                  plant closure dates were supported in the Company's 2019 IRP that was  
15                  filed with the South Dakota Public Utilities Commission (Commission) on  
16                  July 1, 2019 and presented to this Commission in the Public Information  
17                  Exchange Meeting on August 6, 2019. The actual end of coal operations  
18                  date for Lewis & Clark I was March 31, 2021 and end of coal operations  
19                  dates for Heskett I & II were February 24, 2022 and January 22, 2022,  
20                  respectively.

1 **Q. What is the reason for the plant closures of Lewis & Clark I and**  
2 **Heskett I & II?**

3 A. As shown in the 2019 IRP, these units were no longer economical  
4 to run as compared to other alternatives available to the Company and it  
5 was most cost beneficial to shut down the units at the end of their current  
6 coal supply agreements.

7 The costs of fuel, transportation, labor, and maintenance were  
8 rising at these facilities, as shown in the 2019 IRP<sup>1</sup>, while the cost of  
9 natural gas and renewables in the area changed the dispatch  
10 characteristic of the plants so that in 2018 the units idled at their minimum  
11 output level between 80 and 90 percent of all online hours<sup>2</sup>.

12 **Q. How does Montana-Dakota offer its coal-fired generation into the**  
13 **MISO energy market?**

14 A. Because of the Company's obligations under its coal-supply  
15 agreements, if the units are available to run, the generators are entered  
16 into the MISO market as a must run unit at their minimum output level and  
17 the units are dispatched economically above minimum load.

18 If the MISO market price is lower than the Company's marginal cost  
19 of fuel and variable operations & maintenance (O&M), these incremental

---

<sup>1</sup> 2019 IRP, Volume IV, Attachment I, Pages 7 and 8.

<sup>2</sup> 2019 IRP, Volume IV, Attachment I, Page 4, Figure 2.

1 marginal costs are not recovered from the MISO market and are an  
2 additional cost to Montana-Dakota's customers over what the Company  
3 could have bought the same power from the market. The impact of this is  
4 demonstrated in the 2019 IRP<sup>3</sup>.

5 **Q. Does the IRP model tell the Company when to retire a generating**  
6 **unit?**

7 A. The IRP model will not tell the Company when to retire but can be a  
8 tool to evaluate alternatives to help develop a least cost plan including the  
9 determination of a unit retirement date.

10 **Q. What analysis did the Company perform to determine the customer**  
11 **benefits and least cost alternatives associated with the retirement of**  
12 **Lewis & Clark I and Heskett I & II?**

13 A. As part of the 2019 IRP, the Company performed at least three  
14 separate analyses to help determine a best retirement date for Lewis &  
15 Clark I and Heskett I & II.

16 First, the Company varied the retirement dates of the units from  
17 2029 to 2025 to 2021 in the 2019 IRP model. This analysis showed the  
18 earlier the retirement date, the greater the customer savings.

19 Second, the Company modeled retirement of the units in 2021 and

---

<sup>3</sup> 2019 IRP, Volume IV, Attachment I, page 5, Figure 3.

1 then allowed the 2019 IRP model to select each of the units for an  
2 additional 5-year life at the current O&M and fuel cost for the unit with no  
3 additional capital investment. None of these units were selected to run  
4 after 2021.

5 Finally, the Company developed a specific revenue requirement  
6 financial model to determine the actual projected customer impact  
7 associated with a retirement and replacement scenario. This analysis is  
8 described in 2019 IRP<sup>4</sup> and shows significant customer savings over the  
9 option of continuing to run the Lewis & Clark I and Heskett I & II units. This  
10 will be discussed further in the Direct Testimony of Ms. Tara R. Vesey.

11 **Q. What resources did the Company evaluate the Heskett IV project**  
12 **against?**

13 A. As part of the 2019 IRP, the Company developed an internal  
14 portfolio of future units including: coal, gas, wind, solar, and battery; and  
15 issued a Request for Proposals of Capacity and Energy Resources on  
16 August 1, 2018 (2018 RFP).

17 A copy of the 2018 RFP and summary of analysis of bids received  
18 is included in the 2019 IRP report<sup>5</sup>.

19 Nineteen proposals from ten companies were received in response

---

<sup>4</sup> 2019 IRP, Volume IV, Attachment I, Figure 14, Page 17.

<sup>5</sup> 2019 IRP, Volume IV, Attachment F.

1 to the 2018 RFP. The majority of the proposals did not have signed  
2 generator interconnections agreements with MISO and therefore the  
3 magnitude of associated network upgrade costs associated with proposals  
4 were unknown at the time of the 2018 RFP and 2019 IRP analysis. No  
5 proposals were shortlisted from the 2019 RFP because of the uncertainty  
6 with potential network upgrade costs and the impacts to final pricing to the  
7 proposals. Most of the 2018 RFP proposals were included as future  
8 supply options in the 2019 IRP model to help guide the Company in  
9 potential additional resource selections when these proposals become  
10 more definitive.

11 **Q. What did the results of the 2019 IRP reveal about the Company's**  
12 **least cost supply plan?**

13 A. Heskett IV was selected as a least cost unit in the base case model  
14 run and all sensitivities which included: low/high load, low/high natural  
15 gas, low/high MISO energy, high combustion turbine costs, \$30 per ton  
16 carbon cost, higher MISO capacity requirement, and a high natural gas /  
17 MISO energy model run. The higher MISO capacity requirement model  
18 run used a 90 percent coincident factor versus the 81.5 percent coincident  
19 factor used in the base case. The high natural gas/MISO energy model  
20 run used a 2022 natural gas price of \$7.57 per dk and a 2022 MISO

1 energy price of \$50.97 and \$47.62 per MWh for the on-peak and off-peak  
2 hours, respectively.

3 **Q. What other resources did the 2019 IRP model select as a least cost**  
4 **plan?**

5 A. In addition to the Heskett IV unit, the model also selected future  
6 wind, solar, storage, and natural gas-fired combined cycle as part of the  
7 Company's least cost plan<sup>6</sup>.

8 **Q. Why didn't the Company enter into contract negotiations with the**  
9 **wind and solar resources identified in 2022 and 2023?**

10 A. These units did not have a final interconnection agreement and the  
11 costs for their network upgrades was still unknown. Based upon potential  
12 network upgrade costs for other projects coming out of MISO's generator  
13 interconnection queue, a cost adder of up to \$25 per MWh could be added  
14 to these projects. The Company issued another RFP prior to its next IRP  
15 to see if any of these projects or others had final interconnection costs and  
16 better price certainty.

17 These projects were selected in addition to Heskett IV, which is a  
18 least cost resource in all modeling scenarios.

---

<sup>6</sup> 2019 IRP, Volume IV, Attachment C, Page 14, Table 3-1.

1 **Q. What are the impacts of replacing baseload coal with a natural gas-**  
2 **fired peaking turbine?**

3 A. The 2019 IRP model selected the peaking turbine for capacity  
4 requirements and the Company will rely on the MISO market for additional  
5 energy purchases.

6 The 2018 economic comparison in the 2019 IRP showed that fuel  
7 and variable O&M costs of Lewis & Clark I and Heskett I & II were  
8 projected to be \$9.75 per MWh to \$29.62 per MWh over the MISO market  
9 energy purchases<sup>7</sup>.

10 Market prices would have had to rise significantly for Lewis &  
11 Clark I and Heskett I & II to be economically competitive again. By  
12 constructing Heskett IV at its current site, the Company has created an  
13 opportunity to combine cycle Heskett III and Heskett IV, and/or add  
14 additional renewable generation if market energy prices rise significantly in  
15 the future.

16 **Q. Is the addition of Heskett IV the best alternative for the Company?**

17 A. Yes, the addition of Heskett IV, coupled with the retirement of Lewis  
18 & Clark I and Heskett I & II, provides significant customer savings versus  
19 continuing to run these coal units or implementing another future supply

---

<sup>7</sup> 2019 IRP, Volume IV, Attachment I, Page 12, Figure 11.

1 plan. The Heskett IV addition was a least cost resource in the 2019 IRP  
2 base case and all sensitivities.

3 **Purchase Power Agreement (PPA)**

4 **Q. How will the Company meet the capacity need of its customers**  
5 **between the retirement of Lewis & Clark I and Heskett I & II and the**  
6 **addition of Heskett IV?**

7 A. The Company entered into two PPAs to purchase capacity and  
8 energy between the time period of the retirement of Lewis & Clark I and  
9 Heskett I & II, and the completion of Heskett IV. The Company also  
10 purchased additional capacity and energy to cover forecasted capacity  
11 deficits through May 31, 2026. The quantities of capacity and energy in  
12 the PPAs are:

Year	Capacity (MWs)	Energy (MWh)
2021-2022	75	30
2022-2023	90	75
2023-2024	30	75
2024-2025	30	75
2025-2026	30	75

13

14 The pricing in the PPAs is below the modeled MISO Energy Market  
15 price forecast in the 2019 IRP, below the RFP responses to the 2018 RFP,  
16 below the separate financial analysis price assumptions in Volume IV,  
17 Attachment I in the 2019 IRP, and below the current MISO market prices.

1 Q. Does this conclude your direct testimony?

2 A. Yes, it does.