



A Subsidiary of MDU Resources Group, Inc.

400 North Fourth Street  
Bismarck, ND 58501  
701-222-7900  
www.montana-dakota.com

February 14, 2025

Executive Secretary  
North Dakota Public Service Commission  
State Capitol Building  
Bismarck, ND 58505-0480

**Re: Case No. PU-25-\_\_\_\_  
Application for an Advance Determination of Prudence for the Badger  
Wind Project**

**Case No. PU-25-\_\_\_\_  
Application for a Certificate of Public Convenience & Necessity for the  
Badger Wind Project**

Montana-Dakota Utilities Co. (Montana-Dakota) herewith files an original and seven (7) copies of this Application for approval of an Advance Determination of Prudence (ADP) and a Certificate of Public Convenience and Necessity (CPCN) for the 49% ownership interest of the Badger Wind Project (Badger Wind or Project) which represents 122.5 megawatt (MW) of the 250 MW generation capacity. This Project is located near Wishek, North Dakota and will provide energy, capacity, and renewable energy credits to Montana-Dakota's electric customers in North Dakota, Montana, and South Dakota.

Montana-Dakota's 2024 Integrated Resource Plan (IRP) identified the need for additional generation to meet future energy demands. As more fully described in the attached Application and supporting testimonies, the Badger Wind Project provides the Company with a low-cost generation resource that will help meet the energy needs of its electric Integrated System customers. The Project provides price protection against future energy market price increases and natural gas price increases, greater fuel source diversity within the Company's generation resource mix, and the ability to capture value from Federal Production Tax Credits. Accordingly, the Company supports the Project to be a prudent energy resource acquisition.

Montana-Dakota respectfully requests that the Commission grant an ADP and CPCN and determine that this proposal to purchase an ownership interest in Badger Wind is a cost-effective option for customers. Once the Commission grants the ADP and CPCN, the Company will file to assign the Site Certificate effective upon the closing date of the transaction which is anticipated to be the in-service or commercial operation date.

1 PU-25-76 Filed 02/18/2025 Pages: 61  
Application for an Advance Determination of Prudence & a  
Certificate of Public Convenience and Necessity - Redacted  
Montana-Dakota Utilities Co.  
Travis Jacobson, Director, Reg. Affairs

1 PU-25-75 Filed 02/17/2025 Pages: 61  
Application for an Advance Determination of Prudence & a  
Certificate of Public Convenience and Necessity - Redacted  
Montana-Dakota Utilities Co.  
Travis Jacobson, Director, Reg. Affairs

Please refer all inquiries regarding this filing to:

Travis R. Jacobson  
Vice President of Regulatory Affairs  
Montana-Dakota Utilities Co.  
400 North Fourth Street  
Bismarck, ND 58501

Also, please send copies of all written inquiries, correspondence and pleadings to:

Zeviel Simpser  
Attorney  
Dorsey & Whitney LLP  
50 South Sixth Street, Suite 1500  
Minneapolis, Minnesota 55402-2157

Also enclosed are an original and seven copies of Montana-Dakota's Application for Trade Secret Protection of portions of the Application and the Direct Testimonies of Darcy Neigum, Brian Giggee, and Exhibit No. \_\_\_ (DJN-1) that have been marked as "Trade Secret". The referenced materials are provided herein with the trade secret information redacted. One copy of the Trade Secret versions has been provided on yellow paper, marked confidential and placed in a sealed envelope.

Montana-Dakota submits a check in the amount of \$175,000.00 for the ADP in accordance with N.D.C.C. §49-05-16. Montana-Dakota also submits a check for \$10,000 for the CPCN in accordance with N.D.C.C. § 49-03-02(3), which provides the Commission with authority to impose a fee in an amount not to exceed \$175,000 for the processing of an application for a Certificate of Public Convenience and Necessity. If the Commission requires additional fees, the Company will provide any additional fees requested. Montana-Dakota respectfully requests that this filing be accepted as being in full compliance with the filing requirements of this Commission for an ADP and CPCN.

Sincerely,



Travis R. Jacobson  
Vice President of Regulatory Affairs

Attachments  
cc: Zeviel Simpser

**STATE OF NORTH DAKOTA  
PUBLIC SERVICE COMMISSION**

In the Matter of the Application of )  
MONTANA-DAKOTA UTILITIES CO. for )  
an Advance Determination of Prudence )  
for the Badger Wind Project ) Case No. PU-25-\_\_\_\_

In the Matter of the Application of )  
MONTANA-DAKOTA UTILITIES CO. for )  
a Certificate of Public Convenience and )  
Necessity for the Badger Wind Project ) Case No. PU-25-\_\_\_\_

**I. Summary of Application**

Montana-Dakota Utilities Co. (Montana-Dakota or Company) makes this Application pursuant to N.D.C.C. §49-05-16 for an Advance Determination of Prudence (ADP) to acquire a 49% undivided ownership interest in the Badger Wind Project (Badger Wind or Project), located near Wishek, North Dakota. This acquisition represents 122.5 MW of the Project’s total capacity of 250 MW.

The Company also requests through this Application that the Commission grant a Certificate of Public Convenience and Necessity (CPCN) for it’s ownership interest in the Project pursuant to N.D.C.C. §49-03-01.

This Application and the supporting exhibits demonstrate that obtaining an ownership interest in this Project is prudent to provide a cost-effective generation resource for Montana-Dakota’s North Dakota electric customers and that the Project meets the requirements for a CPCN. Under N.D.C.C. §49-05-16(7), a rebuttable presumption exists that the Project, which is located in North Dakota, is prudent.

In support of this application, Montana-Dakota provides the Direct Testimonies and Exhibits of Darcy Neigum, Brian Giggee, Joseph Geiger, and Bradley Davison.

## **II. Description of Applicant**

Montana-Dakota is a Delaware corporation duly authorized to do business in the State of North Dakota as a foreign corporation, and doing business in the State of North Dakota as a public utility subject to the jurisdiction of and regulation by the North Dakota Public Service Commission (Commission) under Title 49, N.D.C.C., as amended. Montana-Dakota's Certificate of Incorporation and amendments thereto have been previously filed with the Commission under Case No. PU-08-710. Such Certificate and Amendments are hereby incorporated by reference as though fully set forth herein and Montana-Dakota requests the Commission to take official notice of them. Montana-Dakota provides electric service to approximately 145,500 customers with approximately 94,000 of those customers located in North Dakota.

## **III. Description of the Project**

Badger Wind is a fully permitted and sited 250 MW wind project located west of Wishek, North Dakota under a Certificate of Site Compatibility issued by this Commission in Case No. PU-22-086. The siting certificate was amended in Case No. PU-24-087. The Project will consist of 92 General Electric ("GE") 2.82-127 (2.82 MW) wind turbines with an 89-meter hub height and an estimated capacity factor of 52 percent. The Project will interconnect via an approximately 0.25-mile

transmission line extending from the project substation to the Wishek Junction 230 kilovolt (kV) Substation owned by Montana-Dakota, providing up to 250 MW to the grid per the executed Generator Interconnection Agreement. The Project is expected to have a 35-year life.

On November 4, 2024, Montana-Dakota entered into a 20-year Power Purchase Agreement (PPA) with Badger Wind, LLC for a 150 MW output purchase from the 250 MW Badger Wind Project. Included in the PPA was a purchase option for Montana-Dakota to purchase a 49 percent undivided ownership interest in the Project. Montana-Dakota's ownership purchase will become effective at the commercial operation date (COD) for the Badger Wind Project which is expected to occur by the end of 2025. The purchase agreement under which Montana-Dakota has exercised its purchase option includes a condition precedent for the satisfactory approval of the Company's application for an ADP and CPCN for Montana-Dakota's purchase of a 49% undivided interest in the Badger Wind Project with the Commission. By this application the Company is seeking an ADP and CPCN for its purchase of a 49% interest in the Project.

#### **IV. Need and Justification for the Project**

Exercising the purchase option contained in the Badger Wind PPA is a least cost resource option for the Company, as indicated in the 2024 IRP and the additional modeling analysis included in Mr. Brian Giggee's testimony. Montana-Dakota utilizing 150 MW of the Badger Wind Project is forecasted to provide significant savings to customers over other supply side options available, including additional Midcontinent Independent Systems Operator (MISO) energy market

purchases, for which the Project will provide a hedge relative to market price volatility. The Company's most recent long-term forecast indicates customer energy requirements will be increasing 0.38 percent per year for the next five years.

The amount of energy that Montana-Dakota purchases from the MISO energy market was about 29 percent, or 967,340 MWhs, in 2023. With the expiration of the Minnkota Power Cooperative (Minnkota) contract on May 31, 2026, Montana-Dakota would be relying on additional MISO energy market purchases to replace the 657,000 MWh from the Minnkota contract. Without the addition of the Badger Wind Project, Montana-Dakota would be looking at nearly fifty percent of the energy to serve customers coming from the MISO energy market.

Purchasing an undivided 49% interest in the Project will further provide benefits to Montana-Dakota's customers. The Badger Wind PPA has a **[TRADE SECRET DATA BEGINS]** **[TRADE SECRET DATA ENDS]** over the 20-year term of the agreement. This compares to an ownership levelized cost of **[TRADE SECRET DATA BEGINS]** **[TRADE SECRET DATA ENDS]** over the same 20-year time-frame. The levelized cost of energy is **[TRADE SECRET DATA BEGINS]** **[TRADE SECRET DATA ENDS]** over the 35-year modeled life of the Project. This compares favorably to the **[TRADE SECRET DATA BEGINS]** **[TRADE SECRET DATA ENDS]** offered to Montana-Dakota for a 35-year term PPA. As discussed further in the testimony of Darcy Neigum, ownership of the Project makes it an even more cost-effective resource over alternatives available to the Company, including the 20-year PPA with Badger Wind over the 35-year life of the Project. Further, ownership

of a percentage of the project will provide needed energy for a more than 50% longer time-frame and give Montana-Dakota more operational control to also help mitigate long-term costs.

#### **V. Cost Estimates**

Montana-Dakota's target purchase price for the Badger Wind Project is \$294 million. In addition, Montana-Dakota will incur legal, internal employee labor, and capitalized interest costs in a total estimated cost of \$1.5 million. North Dakota's share of the costs are approximately 72 percent or approximately \$212 million.

#### **VI. Project Timeline**

Construction of the Project is anticipated to begin in the spring of 2025 and meet a COD by the end of 2025. Badger Wind, LLC has secured wind turbines for the Project and is working with a contractor for all work on the Project. The Badger Wind Project has all its permits, leases, and major agreements in place which limits unknowns and execution risks.

#### **VII. Standard for Advance Determination of Prudence**

Montana-Dakota requests an Advance Determination of Prudence for its acquisition of the Project. A determination that the Project acquisition and associated investment is prudent and recoverable through future rates is necessary to facilitate the estimated investment associated with this resource addition. As provided in N.D.C.C. §49-05-16, the Commission may issue an order approving the prudence of an electric resource addition if the following conditions are met:

- a. The public utility files with its application a projection of costs to the date of the anticipated commercial operation of the resource addition;

- b. The public utility files with its application a fee in the amount of one hundred seventy-five thousand dollars with provision for an increase or waiver of the fee;
- c. The commission provides notice and holds a hearing, if appropriate, in accordance with section 49-02-02; and
- d. The commission determines that the resource addition is prudent. For facilities located or to be located in this state the commission, in determining whether the resource addition is prudent, shall consider the benefits of having the resource addition located in this state.

N.D.C.C. §49-05-16(7) further provides: “There is a rebuttable presumption that a resource addition located in the state is prudent.” A prudence review considers whether a company’s investment, based upon what was known or should have been known at the time of the investment, is reasonable and prudent in light of the circumstances existing at the time.<sup>1</sup> Montana-Dakota has a demonstrated need for additional generation resources and a wind resource at the size of the Project was identified as a part of a cost effective generation portfolio to meet that need. Project ownership interest provides the opportunity for lower costs in comparison to PPA prices over the term of the PPA. Through ownership interest of the Project, Montana-Dakota is also able to better manage the uncertainty of inflation and future maintenance costs. The Company can only recover actual maintenance costs from customers. In contrast, under a PPA the project owner must manage maintenance costs and therefore, the maintenance costs used to develop PPA pricing will be conservatively estimated and will increase the PPA prices in later years.

In summary, ownership of the Badger Wind Project is supported by the Company’s 2024 IRP, the project offsets MISO market purchases and provides

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<sup>1</sup> Re Western Massachusetts Electric Co., 80 PUR 4th 479, 520 (Massachusetts 1986).

price protection against future energy market price increases and natural gas price increase, greater fuel source diversity within the Company's generation resource mix, and the ability to capture value from Federal Production Tax Credits for the benefit of customers.

Montana-Dakota has met the conditions required for an Advance Determination of Prudence and requests that the Project be deemed a prudent investment for Montana-Dakota's North Dakota electric customers.

**VIII. Standard for Certificate of Public Convenience and Necessity**

N.D.C.C. §49-03-01 provides that:

An electric public utility may not begin construction or operation of a public utility plant or system, or of an extension of a plant or system without first obtaining from the commission a certificate that public convenience and necessity require or will require such construction and operation.

Before the Commission may issue a CPCN, the electric public utility must file a certified copy of its articles of incorporation, and submit evidence that it has obtained, or will make application to obtain, the consent of any other public authority whose consent is required (N.D.C.C. §49-03-02). After notice and hearing, the Commission may: (i) issue the certificate; (ii) refuse to issue the certificate; (iii) issue the certificate for only portions of the proposed facilities; or (iv) issue the certificate subject to such terms and conditions the Commission determines the public convenience and necessity requires. The Company believes this filing meets the required standards.

**IX. Conclusion**

Applicant respectfully requests that the Commission:

1. Give Notice of Opportunity to request a hearing to interested parties and, if no hearing is requested within twenty days, to waive the hearing in accordance with §49-02-02, N.D.C.C.;
2. Enter an Order making a determination that the Company's purchase of a 49% undivided interest in the Project is prudent pursuant to the provisions of N.D.C.C. §49-05-16;
3. Enter an Order and issue a Certificate of Public Convenience and Necessity authorizing the Applicant to own a 49% ownership interest of Badger Wind located near Wishek, North Dakota; and
4. Grant such other relief as the Commission shall deem appropriate.

Dated this 14<sup>th</sup> day of February, 2025.



Travis R. Jacobson  
Vice President of Regulatory Affairs

Of Counsel:

Zeviel Simpser  
Attorney  
Dorsey & Whitney LLP  
50 South Sixth Street, Suite 1500  
Minneapolis, Minnesota 55402-2157

MONTANA-DAKOTA UTILITIES CO.

Before the Public Service Commission of North Dakota

Case No. PU-25-\_\_\_\_

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 Vice President of Energy Supply for Montana-Dakota  
6 Utilities Co. (Montana-Dakota).

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

9 A. I have executive responsibility for the electric generation and  
10 delivery arrangements for our electric customers across Montana-  
11 Dakota's four state electric utility and gas supply responsibility across our  
12 natural gas distribution companies located across eight states.

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

14 A. I hold a Bachelor of Science Degree in Electrical and Electronics  
15 Engineering from North Dakota State University as well as a Masters of  
16 Business Administration from the University of Mary. I have been  
17 employed with Montana-Dakota and the MDU Resources family of

1 companies for twenty-nine years, with most of that time spent working in  
2 Montana-Dakota's power production and system operation & planning  
3 departments.

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

5 A. I will provide support for the Company's request for an Advance  
6 Determination of Prudence (ADP) and Certificate of Public Convenience  
7 and Necessity (CPCN) for Montana-Dakota's purchase of an undivided  
8 49% interest in the Badger Wind Project (Badger Wind or Project) as a  
9 prudent generation resource addition available to the Company.

10 **Q. Can you describe how the company became aware of the Badger  
11 Wind Project opportunity?**

12 A. Badger Wind connects to Montana-Dakota's electric transmission  
13 system near Wishek, ND. Montana-Dakota signed a generator  
14 interconnection agreement with Badger Wind, LLC on May 12, 2022. In  
15 early 2024, Badger Wind, LLC entered into a Midcontinent Independent  
16 System Operator (MISO) facility service agreement with Montana-Dakota  
17 for the cost responsibility associated with the transmission network  
18 upgrades for the Badger Wind Project. The signing of the facility service  
19 agreement signaled to Montana-Dakota that Badger Wind, LLC was going  
20 to move forward with the development of the Project.

21 In March of 2024, Montana-Dakota reached out to Orsted Onshore  
22 North America (Orsted), the parent of Badger Wind, LLC, to inquire about  
23 available off-take arrangements for the Project as no public  
24 announcements had been made.

1 Montana-Dakota and Orsted discussed potential power purchase  
2 arrangements and indicative pricing which led to the assumptions for the  
3 150 MW power purchase agreement scenario (New Wind Opportunity) in  
4 Montana-Dakota's 2024 Integrated Resource Plan (IRP). The New Wind  
5 Opportunity scenario in the 2024 IRP showed greater savings than the  
6 Company's base case scenario and led to the action item in the 2024 IRP  
7 to further evaluate this project opportunity<sup>1</sup>.

8 **Q. Can you describe the transaction with Orsted North America**  
9 **regarding the Badger Wind Project?**

10 A. On November 4, 2024, Montana-Dakota entered into a 20-year  
11 power purchase agreement (PPA) with Badger Wind, LLC, an Orsted  
12 company, for a 150 MW output purchase from the 250 MW Badger Wind  
13 Project. The Badger Wind PPA included a 20-year flat energy price which  
14 includes all the capacity and renewable energy credits associated with the  
15 150 MW share of the Project output.

16 The 20-year Badger Wind PPA included an option for Montana-  
17 Dakota to purchase a 49 percent undivided ownership interest in the  
18 Project. Montana-Dakota has elected to exercise this purchase option and  
19 signed a purchase agreement with Badger Wind LLC and an on-going  
20 Project operation and maintenance agreement. Montana-Dakota's  
21 ownership purchase will become effective at the commercial operation

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<sup>1</sup> [MDU 2024 Integrated Resource Plan. Attachment C](#) – Supply Side & Integration Document. Pages 16-23, and Page 32 in Case No. PU-24-294.

1 date (COD) for the Badger Wind Project which is expected to occur  
2 around December 1, 2025.

3 **Q. What is the effect on the Badger Wind PPA if Montana-Dakota's filing**  
4 **for the Badger Wind ADP and CPCN are approved by the North**  
5 **Dakota Public Service Commission (ND PSC)?**

6 A. The Badger Wind purchase agreement contains a condition  
7 precedent for the satisfactory approval of the Company's application for an  
8 ADP and CPCN for the Badger Wind Project with the ND PSC. If both  
9 these requests are approved to Montana-Dakota's satisfaction, then the  
10 condition precedent will be met, and Montana-Dakota can close on the  
11 purchase transaction effective at COD. Upon purchasing the 49%  
12 undivided interest, the amount of output under the Badger Wind PPA will  
13 be reduced from 150 MWs to 27.5 MWs (remainder PPA). Montana-  
14 Dakota's ownership share in the Badger Wind Project will be 122.5 MWs  
15 or 49 percent of the Project.

16 If the ADP and CPCN are not approved, then the purchase  
17 agreement will terminate, and the Company will be bound to the full 150  
18 MW PPA with Badger Wind for its 20-year term.

19 **Q. What is the purchase price for the Badger Wind Project?**

20 A. Montana-Dakota's target purchase price for the Badger Wind  
21 Project is \$294 million with possible adjustments for target budget  
22 overages. Montana-Dakota is also estimating an additional \$1.5 million in  
23 internal legal fees, employee labor, and capitalized interest on the Project.

1 **Q. Can you describe the financial model and analysis Montana-Dakota**  
2 **conducted regarding the Badger Wind Opportunity?**

3 A. Montana-Dakota developed a financial model and annual revenue  
4 requirement, see Confidential Exhibit No.\_\_(DJN-1), based upon inputs  
5 that it received from Badger Wind, LLC. which included:

- 6 1. Capital Cost of \$295.5 million (includes internal costs).
- 7 2. 35-year project life.
- 8 3. O&M costs from Badger Wind, LLC which included **[TRADE**  
9 **SECRET DATA BEGINS]** **[TRADE SECRET**  
10 **DATA ENDS]** maintenance service agreement from General  
11 Electric.
- 12 4. 9.75 percent return on equity with 50 / 50 capital structure based  
13 upon Montana-Dakota's last North Dakota electric rate case in  
14 Case No. PU-22-194.
- 15 5. Fifty-two percent (52%) net Project capacity factor from the P50  
16 wind study conducted by Badger Wind, LLC.
- 17 6. 2.8 cents per Kwh Federal Production Tax Credit (PTC) for wind  
18 projects, plus the ten percent domestic content adder available  
19 through the Inflation Reduction Act of 2022. The company used a  
20 one and a half percent escalation factor per year.

21 The results of the revenue requirement modeling were used on an  
22 annual \$/MWh basis in the updated 2024 IRP modeling study which  
23 showed the Badger Wind Purchase Option was a least cost option for the

1 Company over the original base case and the New Wind Opportunity  
2 sensitivity in the original 2024 IRP.

3 **Q. How did the levelized annual \$/MWh from the ownership model**  
4 **compare with the Badger Wind PPA price?**

5 A. The Badger Wind PPA has a **[TRADE SECRET DATA BEGINS]**  
6 **[TRADE SECRET DATA ENDS]** over the 20-  
7 year term of the agreement. Montana-Dakota also received a 30-year PPA  
8 price from Badger Wind, LLC of **[TRADE SECRET DATA BEGINS]**  
9 **[TRADE SECRET DATA ENDS]**. This compares to an  
10 ownership levelized cost of **[TRADE SECRET DATA BEGINS]**  
11 **[TRADE SECRET DATA ENDS]** over the initial 20-year life of the  
12 Project and an ownership levelized costs of **[TRADE SECRET DATA**  
13 **BEGINS]** **[TRADE SECRET DATA ENDS]** over the 35-  
14 year modeled life of the Project.

15 **Q. Why did Montana-Dakota use a 2.8 cent per Kwh base PTC**  
16 **assumption?**

17 A. 2.8 cents per Kwh was the base PTC value when Montana-Dakota  
18 conducted its Project analysis. The PTC value was adjusted in 2024 to a  
19 value of 2.9 cents per Kwh. Using an initial PTC value of 2.9 cents per  
20 Kwh, the 20-year and 35-year ownership levelized cost for the Project is  
21 **[TRADE SECRET DATA BEGINS]**  
22 **[TRADE SECRET DATA ENDS]**

23 **Q. How does the Badger Wind Project compare to other alternatives?**

1 A. The Winter direct loss of load (DLOL) case was the most limiting  
2 seasonal case in the Company's 2024 IRP and should be used for  
3 comparing alternatives.<sup>2</sup>

4 The Badger Wind Purchase Option plus remainder PPA in the  
5 updated 2024 IRP Winter DLOL case provides \$111.5 million in modeled  
6 Net Present Value (NPV) benefits over the New Wind Opportunity which  
7 was the least cost sensitivity in the original 2024 IRP base case making it  
8 the least cost modeled option for Montana-Dakota.<sup>3</sup>

9 The Badger Wind Purchase Option plus remainder PPA in the  
10 updated 2024 IRP Winter DLOL case provides \$233 million in NPV  
11 savings over the original base case in the 2024 IRP.<sup>4</sup>

12 As compared to MISO energy market purchase prices used in the  
13 2024 IRP, the Badger Wind ownership option provides \$30 million in NPV  
14 savings over the 35-year Project life and \$14.2 million in NPV savings  
15 over the initial 20-year Project life.

16 **[TRADE SECRET DATA BEGINS]**

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<sup>2</sup> [MDU 2024 Integrated Resource Plan, Attachment C](#) – Supply Side & Integration Document. Pages 16-23 in Case No. PU-24-294.

<sup>3</sup> See updated 2024 IRP modeling in Mr. Brian Giggee's testimony.

<sup>4</sup> See updated 2024 IRP modeling in Mr. Brian Giggee's testimony.

1           **[TRADE SECRET DATA ENDS]**

2                           As compared to PPA pricing, the Badger Wind ownership option  
3   provides \$0.15 million in NPV savings over the initial 20-year Project.

1           **[TRADE SECRET DATA BEGINS]**

2

3           **[TRADE SECRET DATA ENDS]**

4   **Q.    What are the benefits that Montana-Dakota considered when it**  
5           **entered into the Badger Wind PPA and purchase option?**

6   A.    1.           The Badger Wind Purchase Option and remainder PPA were  
7           least cost options for the Company as indicated in the 2024 IRP  
8           and the additional modeling analysis included in Mr. Brian Giggee's  
9           testimony. The Badger Wind Purchase Option and remainder PPA  
10          provides significant savings to customers over other supply side

1 options available to the Company including additional MISO energy  
2 market purchases.

3 2. Montana-Dakota has a PPA with Minnkota Power  
4 Cooperative (Minnkota) for 30 MW of purchased capacity and 75  
5 MW of energy which is scheduled to terminate May 31, 2026.  
6 Montana-Dakota reached out to Minnkota to determine if it was  
7 possible to extend or renew the current Minnkota PPA. Minnkota  
8 indicated that it would not be able to extend or renew that  
9 agreement. From a capacity and energy standpoint, the Badger  
10 Wind PPA and purchase option replace the Minnkota PPA on an  
11 annual basis.

12 In the absence of the Badger Wind Project, Montana-  
13 Dakota's MISO energy market purchases could increase to almost  
14 fifty percent of its customer's needs after the expiration of the  
15 Minnkota power purchase agreement.

16 3. The MISO generator interconnection queue is significantly  
17 backlogged, and it is difficult to get a new generation project  
18 through the queue in a timely manner or with any cost certainty  
19 related to transmission network upgrades. MISO is working on  
20 queue reforms and the construction of Long Range Transmission  
21 Plan and Joint Transmission Interconnection Queue Study projects  
22 to help with future interconnections but these projects will take five  
23 to ten years or more to complete.

1           4.           The Badger Wind Project has all its permits, leases, and  
2                           major agreements in place which limits unknowns and execution  
3                           risks. Badger Wind is expected to achieve commercial operation by  
4                           the end of 2025 which lines up with the expiration of the Minnkota  
5                           PPA on May 31, 2026. Montana-Dakota is not aware of any other  
6                           project opportunities like Badger Wind in its area on the MISO  
7                           system that are ready for immediate construction with limited  
8                           execution risks.

9           5.           MISO’s recently approved direct loss of load (DLOL)  
10                           resource accreditation shows an earlier need for Montana-Dakota  
11                           to acquire additional generation resources over MISO’s current  
12                           resource adequacy construct. The Badger Wind Purchase Option  
13                           and PPA meet the projected capacity needs for the Company and  
14                           replace the 2027 combustion turbine identified in the 2024 IRP.<sup>5</sup>

15          6.           Market energy prices around Wishek and Ellendale, North  
16                           Dakota have been negatively impacted with an excess amount of  
17                           wind generation and limited transmission outlet capacity to get all  
18                           the energy produced in the area to market. With the addition of the  
19                           data center loads at Ellendale, market price forecasts are showing  
20                           that the negative congestion prices are lessening, making new

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<sup>5</sup> [MDU 2024 Integrated Resource Plan, Attachment C](#) – Supply Side & Integration Document. Pages 16-23 in Case No. PU-24-294 and updated 2024 IRP modeling in Mr. Brian Giggee’s testimony.

1                   energy resources like Badger Wind economically viable again in the  
2                   market.

3   **Q.    What is the status of the other 100 MWs of Badger Wind output**  
4           **above Montana-Dakota's 150 MW share?**

5                   Montana-Dakota understands that Badger Wind has two separate  
6                   PPAs for the remaining 100 MWs of Project output.

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

8   A.            Yes, it does.

**[TRADE SECRET DATA BEGINS] PUBLIC DOCUMENT - NOT PUBLIC (OR PRIVILEGED) DATA HAS BEEN EXCISED**

**PUBLIC DOCUMENT - NOT PUBLIC (OR PRIVILEGED) DATA HAS BEEN EXCISED**

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MONTANA-DAKOTA UTILITIES CO.

Before the Public Service Commission of North Dakota

Case No. PU-25-\_\_\_\_

Direct Testimony  
of  
Brian J. Giggee

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

2 A. My name is Brian J. Giggee 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 System Operations and Planning for  
6 Montana-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, electric system  
11 operations and planning department, and electric communication  
12 department. The electric system operations and planning department is  
13 responsible for the electric resource planning and expansion studies for  
14 the Company.

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

16 A. I hold a Bachelor of Science Degree in Electrical Engineering from  
17 South Dakota School of Mines and Technology. My work experience

1 includes thirteen years as a planning engineer, four years of experience  
2 managing the planning engineers, and two months of managing the  
3 system operations & planning department for Montana-Dakota.

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

5 A. I provide support for the Company's request for an Advance  
6 Determination of Prudence for the Company's purchase of a 49%  
7 undivided interest in the Badger Wind Project as a least cost generation  
8 resource for the Company's integrated electric system. I am also  
9 sponsoring Exhibit No. \_\_\_(BJG-1).

10 **Q. Can you describe the analysis process that Montana-Dakota**  
11 **conducted with Badger Wind Project as part of the 2024 IRP?**

12 A. In the 2024 IRP<sup>1</sup>, summer and winter cases for the current  
13 Midcontinent Independent System Operator (MISO) Resource Adequacy  
14 rules and summer and winter cases for the future MISO direct loss of load  
15 (DLOL) methodology that has been approved by the Federal Energy  
16 Regulatory Commission (FERC) and will go into effect starting with the  
17 2028-2029 MISO Planning Year. Montana-Dakota included the Badger  
18 Wind Project as a supply option in the 2024 IRP as a single sensitivity run  
19 in all four of the cases labeled the "New Wind Opportunity". In all four of  
20 the cases the "New Wind Opportunity" had a lower net present value  
21 (NPV) over the fifty-year study period than each of the four Base Cases.  
22 Only one sensitivity was run in the 2024 IRP as the Badger Wind Project

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<sup>1</sup> [MDU 2024 Integrated Resource Plan](#) in Case No. PU-24-294.

1 was presented to the Company at the later stages of the 2024 IRP  
2 process and was not fully analyzed.

3 **Q. What additional analysis did Montana-Dakota conduct with the**  
4 **Badger Wind Project outside of what was included in the 2024 IRP?**

5 A supplemental analysis in Exhibit No. \_\_\_\_ (BJG-1) was done after  
6 the filing of the 2024 IRP including the Badger Wind ownership option  
7 (122.5 MW) and remainder PPA (27.5 MW) into the 2024 IRP Base Cases  
8 and all sensitivities. In all four cases, the Badger Wind Purchase options  
9 were selected in the modeling and the results provided a lower NPV over  
10 the fifty-year study period than the Base Cases from the 2024 IRP. The  
11 2024 IRP Winter DLOL Base Case, which had the earliest need for a  
12 resource of the Base Cases in the 2024 IRP, had a simple cycle  
13 combustion turbine selected in 2027 for capacity need, but with the  
14 Badger Wind Project options selected and the capacity credit received  
15 from the Badger Wind Project it delays the addition of a new resource until  
16 2033.

17 Additionally, all the 2024 IRP sensitivities in Exhibit No. \_\_\_\_ (BJG-1)  
18 were run for the summer and winter DLOL cases with the ownership and  
19 remainder PPA options for the Badger Wind Project available in the  
20 model. In the Summer DLOL sensitivities with the Badger Wind Project,  
21 the ownership option was selected in all the sensitivities and the PPA  
22 option was selected in all except for the low market and low market/low  
23 natural gas price. The Winter DLOL sensitivities selected the ownership  
24 option in all the sensitivities and the PPA option in all but one of the

1 sensitivities, the increase of renewables by fifty percent and increase of  
2 demand response by ten percent.

3 **Q. What assumption was used for capacity credit for the Badger Wind**  
4 **Project in the modeling?**

5 A. The Badger Wind capacity credits used in the 2024 IRP Summer  
6 and Winter DLOL and supplemental modeling was based off the initial  
7 2023-2024 DLOL class averages that MISO had provided. The summer  
8 DLOL was at eleven percent or 16.5 MW and the winter DLOL was at  
9 sixteen percent or 24 MW. MISO has recently provided updated values  
10 based off the 2025-26 Planning Year LOLE study and the summer DLOL  
11 has decreased to eight percent and the winter DLOL has increased to  
12 twenty-two percent. Providing additional resource capacity for the winter  
13 DLOL season.

14 **Q. What was the modeled annual ownership and PPA cost of the**  
15 **Badger Wind Project?**

16 A. The 35-year annual revenue requirement for the Badger Wind  
17 ownership interest is: **[TRADE SECRET DATA BEGINS]**

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5 **Q. How will Montana-Dakota utilize Badger Wind Project to meet**  
6 **customer needs?**

7 A. The Badger Wind project will help keep energy prices to Montana-  
8 Dakota's customers as low as possible and provide a hedge relative to  
9 market price volatility. The Company's most recent long-term forecast  
indicates

1 customer energy requirements will be increasing 0.38 percent per year for  
2 the next five years.

3 The amount of energy that Montana-Dakota purchases from the  
4 MISO energy market was about 29 percent, or 967,340 MWhs, in 2023.  
5 With the expiration of a power purchase agreement with the Minnkota  
6 Power Cooperative (Minnkota) on May 31, 2026, Montana-Dakota would  
7 be relying on additional MISO energy market purchases to replace the  
8 657,000 MWh without the Badger Wind Project.

9 The Badger Wind Project is forecasted to provide 683,280 MWh  
10 (558,012 MWh ownership and 125,268 MWh PPA) annually which on an  
11 energy basis would replace the annual energy from the expiring Minnkota  
12 contract. Without the addition of the Badger Wind Project and the expiring  
13 Minnkota contract, Montana-Dakota would be looking at nearly fifty  
14 percent of the energy to serve customers coming from the MISO energy  
15 market.

16 Purchase of an undivided 49% interest in the Badger Wind Project  
17 along with the remainder PPA is a low-cost generation resource  
18 opportunity for Montana-Dakota that provides numerous benefits including  
19 price protection against future MISO energy prices, price protection  
20 against increases in future natural gas prices, greater fuel source diversity  
21 in the Company's generation mix, and the ability to capture significant  
22 value from Federal Production Tax Credits (PTC) for its customers.

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

24 A. Yes, it does.

Comparison of 2024 IRP base models with the Badger Wind Ownership/PPA base models

Summer DLOL models		Summer Current RA models	
	Base Case - Summer DLOL	Base Case - Summer	Badger Wind Ownership/PPA
2024			
2025			
2026	Badger Own(122.5 MW), Badger PPA(27.5 MW)		Badger Own(122.5 MW), Badger PPA(27.5 MW)
2027			
2028	PP(10 MW)	PP(10 MW)	
2029	PP(10 MW)	PP(10 MW)	
2030	PP(10 MW)	PP(10 MW)	
2031	PP(20 MW)	PP(20 MW)	
2032	PP(20 MW)	PP(20 MW)	
2033	Storage(50 MW)	Storage(50 MW)	
2034			
2035	PP(20 MW)		
2036	CT(77.9 MW)		
2037			PP(10 MW)
2038			PP(10 MW)
2039	PP(10 MW)	PP(10 MW)	PP(10 MW)
2040	PP(10 MW)	PP(10 MW)	PP(20 MW)
2041	Storage(50 MW)	Storage(50 MW)	Storage(50 MW)
2042			PP(20 MW)
2043			PP(20 MW)
NPV (\$M)	\$2,684.72	\$2,644.41	\$2,479.84
Difference	0.00%	0.00%	-6.22%

Comparison of 2024 IRP base models with the Badger Wind Ownership/PPA base models

Winter DLOL models		Winter Current RA models	
	Base Case - Winter DLOL	Base Case - Winter	Badger Wind Ownership/PPA
2024		2024	
2025		2025	
2026	Badger Own(122.5 MW), Badger PPA(27.5 MW)		Badger Own(122.5 MW), Badger PPA(27.5 MW)
2027	CT(94.8 MW)	2027	
2028	PP(10 MW)	2028	
2029	PP(10 MW)	2029	
2030	PP(10 MW)	2030	
2031	PP(20 MW)	2031	
2032	PP(20 MW)	2032	
2033	Storage(50 MW)	2033	
2034		2034	
2035		2035	PP(10 MW)
2036	PP(10 MW)	2036	Wind(100 MW)
2037	PP(20 MW)	2037	
2038	PP(20 MW)	2038	
2039	PP(10 MW), Wind(100 MW)	2039	
2040	PP(20 MW)	2040	
2041	Storage(50 MW)	2041	PP(20 MW), Wind(100 MW)
2042	PP(20 MW)	2042	PP(10 MW), Storage(50 MW)
2043	PP(20 MW)	2043	PP(20 MW)
NPV (\$M)	\$2,934.87	NPV (\$M)	\$2,713.27
Difference	0.00%	Difference	0.00%
			\$2,554.02 -12.98%

	Base Case - Summer DLOL	High Gas +\$2	High Gas +\$5	High Gas +\$7	Low Gas -\$1	High Market +25%	High Market +50%	Low Market -25%	Low Market -25% & Low Gas -\$1	High Market +25% & High Gas +\$5	High Market +50% & High Gas +\$7	High CT
2024												
2025												
2026	Badger Own(122.5 MW), Badger PPA(27.5 MW)	Badger Own(122.5 MW), Badger PPA(27.5 MW)	Badger Own(122.5 MW), Badger PPA(27.5 MW)	Badger Own(122.5 MW), Badger PPA(27.5 MW)	Badger Own(122.5 MW), Badger PPA(27.5 MW)	Badger Own(122.5 MW), Badger PPA(27.5 MW)	Badger Own(122.5 MW), Badger PPA(27.5 MW)	Badger Own(122.5 MW)	Badger Own(122.5 MW)	Badger Own(122.5 MW), Badger PPA(27.5 MW)	Badger Own(122.5 MW), Badger PPA(27.5 MW)	Badger Own(122.5 MW), Badger PPA(27.5 MW)
2027												
2028												
2029												
2030												
2031												
2032	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)
2033	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	Storage(50 MW)	Storage(50 MW)	PP(10 MW)	PP(10 MW)	Storage(50 MW)	Storage(50 MW)	Storage(50 MW)
2034	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	
2035	PP(20 MW)	PP(20 MW)	PP(20 MW)	PP(20 MW)	PP(20 MW)	PP(20 MW)	PP(20 MW)	PP(20 MW)	PP(20 MW)	PP(20 MW)	PP(20 MW)	
2036	CT(77.9 MW)	CT(77.9 MW)	CT(77.9 MW)	CT(77.9 MW)	CT(77.9 MW)	CT(77.9 MW)	CT(77.9 MW)	CT(77.9 MW)	CT(77.9 MW)	CT(77.9 MW)	CT(77.9 MW)	
2037												
2038												
2039												
2040												
2041						PP(20 MW)	PP(20 MW)			PP(20 MW)	PP(20 MW)	PP(20 MW)
2042	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	Wind(100 MW), PP(20 MW)	Wind(100 MW), PP(20 MW)	PP(10 MW)	PP(10 MW)	Wind(100 MW), PP(20 MW)	Wind(100 MW), PP(20 MW)	PP(20 MW), Solar(50 MW), PP(20 MW)
2043	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(20 MW)	PP(20 MW)	PP(10 MW)	PP(10 MW)	PP(20 MW)	PP(20 MW)	PP(20 MW)
NPV (\$M)	\$2,561.11	\$2,561.71	\$2,562.28	\$2,562.62	\$2,541.35	\$2,733.65	\$2,846.93	\$2,321.99	\$2,307.58	\$2,732.44	\$2,859.70	\$2,569.56
Difference	0.00%	0.02%	0.05%	0.06%	-0.77%	6.74%	11.16%	-9.34%	-9.90%	6.69%	11.66%	0.33%

Alternative Resources:  
 PP(X MW) - Purchase Capacity  
 CT (77.9 MW) - Simple Cycle Combustion Turbine Frame Unit(GE 7E.03 LLJ)  
 CT (107.3 MW) - Simple Cycle Combustion Turbine Frame Unit(2xGE 7E.05 - MDU 25% of 429 MW Total)  
 Solar(5 MW) - Self built 5 MW solar  
 Wind(100 MW) - Self built 100 MW wind  
 Wind(50 MW) - Self built 50 MW wind  
 Storage(50 MW) - Self built 50 MW Battery Storage  
 CC(200 MW) - Combined Cycle Combustion Turbine(1x1 GE 75.05)  
 CC(329.7 MW) - Heskett 3 & 4 Expansion to Combined Cycle

Summer DLOL Base Case and Sensitivities with Badger Wind Ownership/PPA option Continued											
Base Case - Summer DLOL	Limit Energy 5 years	Limit Energy 10 years	High Growth	Low Growth	Carbon Tax	Coyote Retire 2032	Greenhouse Gas Rule	Lower RA -10%	Renewable +25% Demand Response	Renewable +50% Demand Response	
2024								PP(20 MW)			
2025			PP(20 MW)					PP(20 MW)			
	Badger Own(122.5 MW), Badger PPA(27.5 MW)	Badger Own(122.5 MW), Badger PPA(27.5 MW)	Badger Own(122.5 MW), Badger PPA(27.5 MW), PP(20 MW)	Badger Own(122.5 MW), Badger PPA(27.5 MW)	Badger Own(122.5 MW), Badger PPA(27.5 MW)	Badger Own(122.5 MW), Badger PPA(27.5 MW)	Badger Own(122.5 MW), Badger PPA(27.5 MW)	Badger Own(122.5 MW), Badger PPA(27.5 MW), PP(10 MW)	Badger Own(122.5 MW), Badger PPA(27.5 MW)	Badger Own(122.5 MW), Badger PPA(27.5 MW)	
2026			CC(329.7 MW)					CT (77.9 MW)			
2027		CC(200 MW)							Wind(50 MW)	Wind(100 MW)	
2028											
2029			Wind(100 MW), PP(20 MW)								
2030			CC(200 MW)								
2031											
2032	PP(10 MW)				PP(10 MW)	CT(107.3 MW)	CC(200 MW), PP(20 MW)				
2033	PP(10 MW)				Storage(50 MW)		Storage(50 MW)				
2034	PP(10 MW)					PP(10 MW)		PP(10 MW)	PP(10 MW)		
2035	PP(20 MW)		PP(20 MW)			PP(10 MW)		PP(10 MW)	PP(10 MW)		
2036	CT(77.9 MW)		CC(200 MW)	PP(10 MW)		PP(20 MW)		PP(20 MW)	PP(20 MW)	PP(10 MW)	
2037				PP(10 MW)		PP(20 MW)		PP(20 MW)	Solar(5 MW), PP(20 MW)	PP(10 MW)	
2038				PP(10 MW)		PP(20 MW)		CT (77.9 MW)	PP(20 MW)	PP(20 MW)	
2039			PP(20 MW)	PP(20 MW)		Storage(50 MW)	PP(10 MW)		Storage(50 MW)	PP(20 MW)	
2040			CC(200 MW)	PP(20 MW)			PP(10 MW)			Storage(50 MW)	
2041		Storage(50 MW)		Storage(50 MW)	Wind(100 MW), PP(10 MW)	PP(10 MW)	Storage(50 MW)		PP(10 MW)		
2042	PP(10 MW)		PP(10 MW)		Wind(100 MW), PP(10 MW)	PP(20 MW)			PP(20 MW)	PP(10 MW)	
2043	PP(10 MW)	PP(10 MW)	Storage(50 MW), PP(20 MW)		PP(10 MW)	PP(20 MW)		PP(10 MW)	PP(20 MW)	PP(20 MW)	
NPV (\$M)	\$2,561.11	\$3,202.57	\$6,091.35	\$2,410.81	\$4,506.91	\$2,580.37	\$2,962.09	\$2,826.28	\$2,629.13	\$2,666.84	
Difference	0.00%	29.35%	137.84%	-5.87%	75.98%	0.75%	15.66%	10.35%	2.66%	4.13%	

Alternative Resources:  
 PP(XX MW) - Purchase Capacity  
 CT (77.9 MW) - Simple Cycle Combustion Turbine Frame Unit(GE 7E-03 LL)  
 CT (107.3 MW) - Simple Cycle Combustion Turbine Frame Unit(2XGE 7F-05 - MDU 25% of 429 MW Total)  
 Solar(5 MW) - Self built 5 MW solar  
 Wind(100 MW) - Self built 100 MW wind  
 Wind(50 MW) - Self built 50 MW wind  
 Storage(50 MW) - Self built 50 MW Battery Storage  
 CC(200 MW) - Combined Cycle Combustion Turbine(1x1 GE 75-05)  
 CC(329.7 MW) - Heskett 3 & 4 Expansion to Combined Cycle

	Winter DLOL Base Case and Sensitivities with Badger Wind Ownership/PPA option											
	Base Case - Winter DLOL	High Gas +\$2	High Gas +\$5	High Gas +\$7	Low Gas -\$1	High Market +25%	High Market +50%	Low Market -25%	Low Market -25% & High Gas -\$1	High Market +25% & High Gas +\$5	High Market +50% & High Gas +\$7	High CT
2024												
2025												
2026	Badger Own(122.5 MW), Badger PPA(27.5 MW)	Badger Own(122.5 MW), Badger PPA(27.5 MW)	Badger Own(122.5 MW), Badger PPA(27.5 MW)	Badger Own(122.5 MW), Badger PPA(27.5 MW)	Badger Own(122.5 MW), Badger PPA(27.5 MW)	Badger Own(122.5 MW), Badger PPA(27.5 MW)	Badger Own(122.5 MW), Badger PPA(27.5 MW)	Badger Own(122.5 MW), Badger PPA(27.5 MW)	Badger Own(122.5 MW), Badger PPA(27.5 MW)	Badger Own(122.5 MW), Badger PPA(27.5 MW)	Badger Own(122.5 MW), Badger PPA(27.5 MW)	Badger Own(122.5 MW), Badger PPA(27.5 MW)
2027	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)
2028	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)
2029	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)
2030	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)
2031	PP(20 MW)	PP(20 MW)	PP(20 MW)	PP(20 MW)	PP(20 MW)	PP(20 MW)	PP(20 MW)	PP(20 MW)	PP(20 MW)	PP(20 MW)	PP(20 MW)	PP(20 MW)
2032	PP(20 MW)	PP(20 MW)	PP(20 MW)	PP(20 MW)	PP(20 MW)	PP(20 MW)	PP(20 MW)	PP(20 MW)	PP(20 MW)	PP(20 MW)	PP(20 MW)	PP(20 MW)
2033	Storage(50 MW)	Storage(50 MW)	Storage(50 MW)	Storage(50 MW)	Storage(50 MW)	Storage(50 MW)	Storage(50 MW)	Storage(50 MW)	Storage(50 MW)	Storage(50 MW)	Storage(50 MW)	Storage(50 MW)
2034												
2035												
2036	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)
2037	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)
2038	PP(20 MW)	PP(20 MW)	PP(20 MW)	PP(20 MW)	PP(20 MW)	PP(20 MW)	PP(20 MW)	PP(20 MW)	PP(20 MW)	PP(20 MW)	PP(20 MW)	PP(20 MW)
2039	PP(20 MW)	PP(20 MW)	PP(20 MW)	PP(20 MW)	PP(20 MW)	PP(20 MW)	PP(20 MW)	PP(20 MW)	PP(20 MW)	PP(20 MW)	PP(20 MW)	PP(20 MW)
2040	CT(94.8 MW)	CT(94.8 MW)	CT(94.8 MW)	CT(94.8 MW)	CT(94.8 MW)	CT(94.8 MW)	CT(94.8 MW)	CT(94.8 MW)	CT(94.8 MW)	CT(94.8 MW)	CT(94.8 MW)	Storage(50 MW)
2041												Storage(50 MW)
2042	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)
2043	PP(20 MW)	PP(20 MW)	PP(20 MW)	PP(20 MW)	PP(20 MW)	PP(20 MW)	PP(20 MW)	PP(20 MW)	PP(20 MW)	PP(20 MW)	PP(20 MW)	PP(20 MW)
NPV (\$M)	\$2,701.82	\$2,702.15	\$2,702.57	\$2,702.77	\$2,640.46	\$2,990.00	\$2,457.06	\$2,442.39	\$2,881.24	\$3,011.87	\$2,707.56	\$2,707.56
Difference	0.00%	0.01%	0.03%	0.04%	-2.27%	10.67%	-9.06%	-9.60%	6.64%	11.48%	0.21%	0.21%
Alternative Resources:												
PP(XX MW) - Purchase Capacity												
CT (53.1 MW) - Simple Cycle Combustion Aeroderivative Unit(GE LM 6000 PF+)												
CT (94.8 MW) - Simple Cycle Combustion Turbine Frame Unit(GE 7E.03 LU)												
CT (109.9 MW) - Simple Cycle Combustion Aeroderivative Unit(GE LMS100 PB+)												
RICE(44.4 MW) - Simple Cycle Combustion Turbine Frame Unit(2xGE 7F.05 - MDU 25% of 429 MW Total)												
Wind(100 MW) - Reciprocating Engine (4 x 11 MW Wantsila 31DF)												
Wind(50 MW) - Self built 100MW wind												
Storage(50 MW) - Self built 50 MW Battery Storage												
CC(200 MW) - Combined Cycle Combustion Turbine(1x1 GE 75.05)												
CC(365.4 MW) - Heskett 3 & 4 Expansion to Combined Cycle												
New Wind(150 MW) - New wind opportunity of 150 MW												

Winter DLOL Base Case and Sensitivities with Badger Wind Ownership/PPA option Continued										
Base Case - Winter DLOL	Limit Energy 5 years	Limit Energy 10 years	High Growth	Low Growth	Carbon Tax	Coyote Retire 2032	Greenhouse Gas Rule	Lower RA -10%	Demand Response +5%	Demand Response +10%
2024			PP(30 MW)					PP(50 MW)		
2025			PP(60 MW)					PP(50 MW)		
2026	Badger Own(122.5 MW), Badger PPA(27.5 MW)	Badger Own(122.5 MW), Badger PPA(27.5 MW)	PPA(27.5 MW), CC(109.9 MW)	Badger Own(122.5 MW), Badger PPA(27.5 MW)	Badger Own(122.5 MW), Badger PPA(27.5 MW)	Badger Own(122.5 MW), Badger PPA(27.5 MW)	Badger Own(122.5 MW), Badger PPA(27.5 MW)	PPA(27.5 MW), CT(94.8 MW)	Badger Own(122.5 MW), Badger PPA(27.5 MW)	Badger Own(122.5 MW)
2027	PP(10 MW)	PP(10 MW)	CT(94.8 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)
2028	PP(10 MW)	CC(200 MW)	CC(200 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	Wind(50 MW)	Wind(100 MW)
2029	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(20 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)		
2030	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(20 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)	PP(10 MW)		
2031	PP(20 MW)	PP(20 MW)	PP(20 MW)	PP(20 MW)	PP(20 MW)	PP(20 MW)	PP(20 MW)	PP(20 MW)	PP(10 MW)	
2032	PP(20 MW)	CC(200 MW)	CC(200 MW)	PP(20 MW)	PP(20 MW)	CT(116.6 MW)	CC(200 MW), Storage(50 MW)	PP(20 MW)	PP(10 MW)	PP(10 MW)
2033	Storage(50 MW)			Storage(50 MW)	CC(200 MW)			Storage(50 MW)	Storage(50 MW)	Storage(50 MW)
2034										
2035			CC(200 MW)		PP(10 MW)					
2036	PP(10 MW)				PP(10 MW)		PP(20 MW)	PP(10 MW)		
2037	PP(10 MW)		PP(20 MW)	PP(10 MW)			PP(20 MW)	PP(20 MW)		
2038	PP(20 MW)	PP(10 MW)	CC(200 MW)	PP(10 MW)	PP(10 MW)		Storage(50 MW)	PP(20 MW)	PP(10 MW)	
2039	PP(20 MW)			PP(10 MW)				PP(20 MW)	PP(10 MW)	
2040	CT(94.8 MW)	PP(10 MW)	CC(200 MW)	PP(10 MW)		PP(10 MW)		CT(94.8 MW)	PP(10 MW)	PP(10 MW)
2041		Storage(50 MW)		Storage(50 MW)	Wind(100 MW)	Storage(50 MW)	PP(20 MW)	Storage(50 MW)	Storage(50 MW)	Storage(50 MW)
2042	PP(10 MW)	PP(10 MW)	CC(200 MW)	PP(10 MW)			Wind(100 MW)		PP(20 MW)	PP(10 MW)
2043	PP(20 MW)	PP(20 MW)	CC(200 MW)	PP(10 MW)		PP(10 MW)	PP(20 MW)	PP(20 MW)	PP(20 MW)	PP(20 MW)
NPV (\$M)	\$2,701.82	\$3,383.90	\$7,186.52	\$2,573.05	\$4,641.64	\$2,735.71	\$3,118.05	\$2,994.67	\$2,771.19	\$2,824.74
Difference	0.00%	25.25%	165.99%	-4.77%	71.80%	1.25%	15.41%	10.84%	2.57%	4.55%

Alternative Resources:  
 PP(XX MW) - Purchase Capacity  
 CT (53.1 MW) - Simple Cycle Combustion Aeroderivative Unit(GE LM 6000 PF+)  
 CT (94.8 MW) - Simple Cycle Combustion Turbine Frame Unit(GE 7E.03 LU)  
 CT (109.9 MW) - Simple Cycle Combustion Aeroderivative Unit(GE LMS 100 PB+)  
 CT (116.6 MW) - Simple Cycle Combustion Turbine Frame Unit(2xGE 7F.05 - MDU 25% of 429 MW Total)  
 RICE(44.4 MW) - Reciprocating Engine (4 x 11 MW Wartsila 31DF)  
 Wind(100 MW) - Self built 100 MW wind  
 Wind(50 MW) - Self built 50 MW wind  
 Storage(50 MW) - Self built 50 MW Battery Storage  
 CC(200 MW) - Combined Cycle Combustion Turbine(1x1 GE 75.05)  
 CC(365.4 MW) - Heskett 3 & 4 Expansion to Combined Cycle  
 New Wind(150 MW) - New wind opportunity of 150 MW

	Badger Wind Ownership/PPA modeling Extreme Weather (Winter DLOI)			2024 IRP modeling Extreme Weather (Winter DLOI)		
	Normal Weather annual costs(\$M)	Extreme Weather annual costs(\$M)	Extreme Weather unserved energy (GWh)	Normal Weather annual costs(\$M)	Extreme Weather annual costs(\$M)	Extreme Weather unserved energy (GWh)
5th year	115.23	115.29	0	137.37	137.88	0
10th year	138.74	138.79	0	159.13	160.61	0
20th year	252.38	255.96	0	267.43	271.46	0.06

**3.3.1. Extreme Weather vs Normal Weather**

In this scenario, the model was set up in EGEAS to reduce the amount of available on-peak and off-peak MISO purchases by one-third what is assumed to normally be available in the first quarter of the year to show the effects of having less energy available from the market under an extreme weather event. Table 3-9 shows the difference in annual costs and unserved energy for years 5, 10, and 20 of the study periods.

Badger Wind Ownership/PPA modeling Natural Gas Shortage (Winter DLOI)		IRP 2024 modeling Natural Gas Shortage (Winter DLOI)	
	Base Case unserved energy (GWh)	Base Case unserved energy (GWh)	NG Shortage unserved energy (GWh)
5th year	0	0	0.58
10th year	0	0	3.43
20th year	0	0.06	3.09

**3.3.2. Natural Gas Fuel Delivery Outages**

In this scenario, the model was set up in EGEAS to reduce the amount of available on-peak and off-peak MISO purchases by one-third of what is assumed to normally be available in the first quarter of the year to show the effects of having potentially less energy available from the market in a natural gas fuel delivery outage event, along with increasing the forced outage rate on the MDU owned combustion turbines to show the effect increased outages associated with natural gas supply. Table 3-10 shows the difference in unserved energy for years 5, 10, and 20 of the study periods.

MONTANA-DAKOTA UTILITIES CO.

Before the Public Service Commission of North Dakota

Case No. PU-25-\_\_\_\_

Direct Testimony  
of  
Joseph E. Geiger

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

2 A. My name is Joseph E. Geiger 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 Generation in the power production department  
6 of Montana-Dakota Utilities Co. (Montana-Dakota).

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

9 A. I have overall responsibility for the day-to-day operation of  
10 Montana-Dakota's electric generation facilities, represent Montana-  
11 Dakota's interests in joint owned generation facilities operated by other  
12 companies, and I am also responsible for new generation development.

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

14 A. I hold a Bachelor's Degree in Electrical Engineering from the  
15 University of North Dakota. My work experience includes six years of  
16 experience as a plant engineer, nine years of experience in varying roles  
17 of plant supervision/management, and five years of generation

1 development and operational responsibilities in my current position which  
2 includes coal-fired, gas-fired, and renewable generation.

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

4 A. I provide support for the Company's request for an Advance  
5 Determination of Prudence for its purchase of a 49% undivided interest  
6 in the Badger Wind Project (Project) as a generation resource for the  
7 Company's integrated electric system, specifically providing a general  
8 project overview along with purchase and ownership structures.

9 **Q. Please describe the Badger Wind Project.**

10 A. Badger Wind is a fully permitted and sited wind project located in  
11 Logan and McIntosh Counties, in south-central North Dakota, adjacent to  
12 the western side of the City of Wishek under a Certificate of Site  
13 Compatibility issued by this Commission in Case No. PU-22-086. The  
14 siting certificate was amended in Case No. PU-24-087 to reflect an  
15 increase in the number of turbines and the reduced turbine size which  
16 allows for a maximum of 262.62 megawatts (MW) of installed generation  
17 capacity. It should be noted the generator interconnection agreement  
18 limits the total project output onto the grid of 250 MWs. The additional  
19 turbine MWs are installed to account for electric losses within the project  
20 and turbine outages.

21 The Project will consist of 92 General Electric (GE) 2.82-127 (2.82  
22 MW) wind turbines with an 89-meter hub height and an estimated capacity  
23 factor of 52 percent. The Project will interconnect via an approximately  
24 0.25-mile transmission line extending from the project substation to the

1 Wishek Junction 230 kilovolt (kV) Substation owned by Montana-Dakota,  
2 providing up to 250 MW to the grid per the interconnect request. The  
3 Project has all of the necessary land agreements and interconnection  
4 rights to accommodate a project with a total size of 250 MW.

5 The Project will require new gravel access roads and improvement  
6 to existing roads, a collector substation, underground collection and  
7 communication lines, up to three meteorological towers, an ADLS light  
8 mitigation system, and an O&M facility. The Project is projected to have a  
9 35-year life. The long life can be attributed to GE provided extreme cold  
10 weather packages, blade protection, corrosion protection, and an  
11 extended-life design package. The extended-life design package provides  
12 guidance and additional action to take related to component inspection,  
13 maintenance or replacement recommendations to reach the extended life  
14 period.

15 **Q. Can you describe the full-service agreement (FSA) included in the**  
16 **purchase option for the Badger Wind Project?**

17 A. The FSA is a long-term agreement with the turbine manufacturer  
18 which includes all maintenance and replacement parts over the term of the  
19 agreement, excluding events of force majeure, along with an annual  
20 availability guarantee for the associated performance of the Project. The  
21 FSA arrangement reduces the unknown cost of future maintenance  
22 including major maintenance costs and components. Montana-Dakota will  
23 still be responsible for additional maintenance costs associated with force  
24 majeure events.

1                   At the end of the FSA with the turbine manufacturer the Project  
2 owners will either self-perform the operation and maintenance functions or  
3 contract with a third party.

4 **Q. What is the status of the Project's major contracts and agreements?**

5 A.               Badger Wind, LLC has secured wind turbines from GE for the  
6 Project and is working under a limited notice to proceed with a contractor  
7 who will perform all of the civil, mechanical, electrical, and commissioning  
8 work for the Project. The Project schedule is to have full general contract  
9 agreement in place by spring so that civil work and construction can  
10 continue.

11               All of the Project lease agreements are in place as well as the  
12 interconnection agreement with MISO.

13 **Q. What is the construction schedule for the Project?**

14 A.               The Project began in 2024 under the limited notice to proceed with  
15 the general contractor and the project is expected meet a December 1,  
16 2025 Commercial Operation Date.

17 **Q. Please describe the local benefits of the Project.**

18 A.               Overall, Badger Wind Project is expected to provide annual  
19 landowner lease payments of approximately \$2,000,000 and generation  
20 production tax payments of approximately \$1,200,000.

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

22 A.               Yes, it does.

MONTANA-DAKOTA UTILITIES CO.

Before the Public Service Commission of North Dakota

Case No. PU-25-\_\_\_\_

Direct Testimony  
of  
Bradley J. Davison

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

2 A. My name is Bradley J. Davison, 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 Manager of Regulatory Affairs for Montana-Dakota Utilities  
6 Co. (Montana-Dakota or Company).

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

9 A. I am responsible for the preparation of rate recovery mechanisms,  
10 fuel cost adjustments, purchased gas cost adjustments, and gas tracking  
11 adjustments in each of the jurisdictions in which Montana-Dakota  
12 operates.

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

14 A. I graduated from North Dakota State University with a Bachelor of  
15 Science degree in Hospitality and Tourism Management, and University of  
16 Mary with a Bachelor of Science degree in Accounting. I started my career  
17 with Montana-Dakota in 2011 as a Credit and Collections Team Lead.  
18 During my tenure with the Company, I have held various positions of

1 increasing responsibilities including Credit and Collections Supervisor,  
2 Revenue Accounting Manager, and now as Regulatory Affairs Manager.

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

4 A. I provide support for the Company's request for an Advance  
5 Determination of Prudence (ADP) for the Badger Wind Project (Project).  
6 Specifically, I will provide an estimated revenue requirement of the Project  
7 as well as the estimated fuel and purchased power savings, including the  
8 residential customer impact. I am also sponsoring Exhibit No.\_\_(BJD-1),  
9 Exhibit No.\_\_(BJD-2), and Exhibit No.\_\_(BJD-3).

10 **Q. Please provide details of the total cost of the Project and the portion**  
11 **allocated to North Dakota.**

12 A. Montana-Dakota's target purchase price for the Project is \$295.5 as  
13 stated in Mr. Neigum's testimony. The portion of the Project allocated to  
14 North Dakota is approximately \$212 million, which is calculated in Exhibit  
15 No.\_\_(BJD-1).

16 **Q. If the Company's ADP is approved, how does Montana-Dakota plan**  
17 **to request recovery from customers?**

18 A. Montana-Dakota has a Renewable Resource Cost Adjustment  
19 (RRCA) Rate 55 that allows recovery of renewable generation resource  
20 investments. The RRCA currently includes the recovery of the Company's  
21 existing wind facilities, including Cedar Hills, Diamond Willow, and  
22 Thunder Spirit. The RRCA is updated annually on or around November

1 1<sup>st</sup>. The update includes a true up of the over/under collected balance  
2 from the previous year.

3 The in-service date in late 2025 will closely match the filing dates of  
4 the next annual RRCA. The Project will qualify for Production Tax Credits  
5 (PTCs). Consistent with Montana-Dakota's other wind facilities, the  
6 Company would propose to include a levelization of the revenue to more  
7 closely match the declining rate base of other generation facilities. This  
8 results in more consistent rates over time for customers when viewed over  
9 the entire life of each wind facility.

10 The remainder PPA of 27.5 MW will be recovered through  
11 Montana-Dakota's Fuel and Purchased Power Adjustment (FPPA) Rate  
12 58.

13 **Q. Please describe the estimated revenue requirement to North Dakota**  
14 **customers for the ownership interest of the Project?**

15 A. The revenue requirement of the Project is expected to be  
16 approximately \$12.3 million in the first full calendar year of operations as  
17 shown in Exhibit No.\_\_(BJD-1). The revenue requirement has been  
18 calculated similarly to the existing wind facilities revenue requirement and  
19 includes land lease expenses, taxes, insurance, maintenance  
20 agreements, depreciation rates based on a 35-year project life, and the  
21 authorized return on equity of 9.75% as approved in Case No. PU-22-194.  
22 A revenue levelization adjustment has also been included and is fully  
23 discussed below. Based on the revenue requirement, a residential

1 customer using 800 Kwh per month would see an increase of \$4.59 per  
2 month, or \$55.08 annually.

3 **Q. Please describe the revenue levelization adjustment.**

4 A. Montana-Dakota proposes to use the same levelization  
5 methodology that has been used for Cedar Hills, Diamond Willow, and  
6 Thunder Spirit pursuant to the Commission's Orders in Case Nos. PU-19-  
7 355, PU-20-440, and PU-21-420.

8 The levelization attempts to more closely match the revenue  
9 requirement of other generation resources and offers a more consistent  
10 cost for customers over the life of each wind project. Because wind  
11 projects typically qualify for PTCs for the first 10 years of the wind facility's  
12 life, and because the relative size of the credits compared to the revenue  
13 requirement is so great, the absence of a levelization adjustment results in  
14 a dramatic increase in the revenue requirement upon the expiration of the  
15 PTCs. Montana-Dakota has included a graph showing the revenue  
16 requirement with and without the levelization adjustment in Exhibit  
17 No.\_\_(BJD-2).

18 **The generation from the ownership interest in the Project will reduce**  
19 **the energy purchased from the MISO market. Please provide the**  
20 **customer impact of this reduction in costs that will be passed to**  
21 **customers.**

22 The Badger Wind Project will reduce the amount of energy  
23 Montana-Dakota's integrated system will need to buy each year by

1 approximately 558,000 MW annually, which will reduce the purchased  
2 power costs by an estimated \$10.5 million annually as allocated to North  
3 Dakota customers shown in Exhibit No.\_\_(BJD-3). Residential customers  
4 using 800 Kwh per month will see a decrease of \$4.02 per month, or  
5 \$48.24 annually.

6 **Please summarize the net impact to customers if the Project is**  
7 **approved and recovery is granted through the RRCA, net of F&PP**  
8 **savings.**

9 While customers will see a net increase of \$7 in the first calendar  
10 year of operations based on the estimated impact to the RRCA and FPPA  
11 rates, Mr. Neigum's testimony shows Badger Wind Ownership and  
12 remainder PPA will provide the most benefit to customers over the life of  
13 the project compared to solely purchasing energy under the PPA or MISO  
14 energy market purchase prices used in the 2024 IRP.

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

16 A. Yes, it does.

**Montana-Dakota Utilities Co.  
 Electric Utility - North Dakota  
 Renewable Resource Cost Adjustment - Badger Wind  
 2026 Example Rates**

	<u>Total</u>
Revenue Requirement 1/	\$13,845,685
Levelization 1/	(1,488,603)
Total Cost to be Recovered through RRCA Rates	<u>\$12,357,082</u>

<u>Allocation of Costs &amp; Resulting Rates</u>	<u>Allocated RRCA Costs 2/</u>	<u>2026 Projected Billing Determinants</u>	<u>Example RRCA Rates</u>
Residential & Small General	\$5,160,690	898,342,292 Kwh	\$0.00574 per Kwh
Large General	7,104,775	1,175,792,473 Kwh	\$0.00604 per Kwh
Lighting	91,617	22,104,235 Kwh	\$0.00414 per Kwh
	<u>\$12,357,082</u>		

1/ Exhibit No. \_\_\_\_ (BJD-1), Page 3.

2/ Demand/Energy for Wind Allocation Factor 3 approved in Case No. PU-22-194.

Residential & Small General	41.763014%	(Rates 10, 13, 16, 20, 25, 26, and 40)
Large General	57.495574%	(Rates 30, 31, 32, 38, 48 and contracts)
Lighting	0.741412%	(Rates 41, 52)
	<u>100.000000%</u>	

Montana-Dakota Utilities Co.  
 Electric Utility - North Dakota  
 Renewable Resource Cost Adjustment  
 Revenue Requirement - Badger Wind  
 Estimated 2026

	Projected					
	Jan 2026	Feb 2026	Mar 2026	Apr 2026	May 2026	June 2026
<b>Rate Base</b>						
Plant Balance						
Badger Wind	\$212,297,282	\$212,297,282	\$212,297,282	\$212,297,282	\$212,297,282	\$212,297,282
Total Plant Balance	212,297,282	212,297,282	212,297,282	212,297,282	212,297,282	212,297,282
<b>Accumulated Reserve</b>						
Badger Wind	505,975	1,011,950	1,517,925	2,023,900	2,529,875	3,035,850
Decommissioning Balance	20,064	40,128	60,192	80,256	100,320	120,384
Total Accumulated Reserve	526,039	1,052,078	1,578,117	2,104,156	2,630,195	3,156,234
Net Plant in Service	\$211,771,243	\$211,245,204	\$210,719,165	\$210,193,126	\$209,667,087	\$209,141,048
<b>Adds:</b>						
Def. Tax on Wind Decommissioning 4/	4,897	9,794	14,691	19,588	24,485	29,382
Deferred Tax on Levelization Reg Liability	(30,274)	(60,549)	(90,823)	(121,097)	(151,372)	(181,646)
<b>Less:</b>						
Accum DIT - Badger Wind 1/	(\$679,315)	(\$1,301,860)	(\$1,861,566)	(\$2,360,431)	(\$2,796,383)	(\$3,171,494)
Levelization Regulatory Liability	(124,050)	(248,101)	(372,151)	(496,201)	(620,251)	(744,302)
Total Rate Base	\$212,549,231	\$212,744,410	\$212,876,750	\$212,948,249	\$212,956,834	\$212,904,580
<b>Return on Rate Base 2/</b>	<b>\$1,292,299</b>	<b>\$1,293,486</b>	<b>\$1,294,291</b>	<b>\$1,294,725</b>	<b>\$1,294,778</b>	<b>\$1,294,460</b>
<b>Expenses</b>						
Depreciation Expense						
Badger Wind	505,975	505,975	505,975	505,975	505,975	505,975
Wind Decommissioning 4/	20,064	20,064	20,064	20,064	20,064	20,064
Total Depreciation	526,039	526,039	526,039	526,039	526,039	526,039
Generation Taxes 6/	34,859	34,859	34,859	34,859	34,859	34,859
Other Expenses 3/	431,084	431,084	431,084	431,084	431,084	431,084
<b>Total Expenses</b>	<b>\$991,982</b>	<b>\$991,982</b>	<b>\$991,982</b>	<b>\$991,982</b>	<b>\$991,982</b>	<b>\$991,982</b>
Income before Taxes (EBIT)	(\$991,982)	(\$991,982)	(\$991,982)	(\$991,982)	(\$991,982)	(\$991,982)
Interest Expense 2/	(425,807)	(426,198)	(426,463)	(426,606)	(426,624)	(426,519)
Taxable income	(\$1,417,789)	(\$1,418,180)	(\$1,418,445)	(\$1,418,588)	(\$1,418,606)	(\$1,418,501)
Income Taxes 5/	(\$346,010)	(\$346,105)	(\$346,170)	(\$346,205)	(\$346,209)	(\$346,184)
Production Tax Credit 7/	(1,356,519)	(954,537)	(1,052,626)	(909,847)	(1,028,562)	(934,140)
Net Income Taxes	(\$1,702,529)	(\$1,300,642)	(\$1,398,796)	(\$1,256,052)	(\$1,374,771)	(\$1,280,324)
Operating Income	\$710,547	\$308,660	\$406,814	\$264,070	\$382,789	\$288,342
<b>Revenue Requirement</b>	<b>\$769,563</b>	<b>\$1,302,765</b>	<b>\$1,173,988</b>	<b>\$1,363,389</b>	<b>\$1,206,413</b>	<b>\$1,330,931</b>

Montana-Dakota Utilities Co.  
 Electric Utility - North Dakota  
 Renewable Resource Cost Adjustment  
 Revenue Requirement - Badger Wind  
 Estimated 2026

	Projected						Average Balance
	July 2026	Aug 2026	Sept 2026	Oct 2026	Nov 2026	Dec 2026	
<b>Rate Base</b>							
Plant Balance							
Badger Wind	\$212,297,282	\$212,297,282	\$212,297,282	\$212,297,282	\$212,297,282	\$212,297,282	
Total Plant Balance	212,297,282	212,297,282	212,297,282	212,297,282	212,297,282	212,297,282	212,297,282
Accumulated Reserve							
Badger Wind	3,541,825	4,047,800	4,553,775	5,059,750	5,565,725	6,071,700	
Decommissioning Balance	140,448	160,512	180,576	200,640	220,704	240,768	
Total Accumulated Reserve	3,682,273	4,208,312	4,734,351	5,260,390	5,786,429	6,312,468	
Net Plant in Service	\$208,615,009	\$208,088,970	\$207,562,931	\$207,036,892	\$206,510,853	\$205,984,814	208,878,029
<b>Adds:</b>							
Def. Tax on Wind Decommissioning 4/	34,279	39,176	44,073	48,970	53,867	58,764	
Deferred Tax on Levelization Reg Liability	(211,920)	(242,195)	(272,469)	(302,743)	(333,018)	(363,292)	
<b>Less:</b>							
Accum DIT - Badger Wind 1/	(\$3,483,766)	(\$3,733,199)	(\$3,921,791)	(\$4,047,544)	(\$4,112,456)	(\$4,114,454)	
Levelization Regulatory Liability	(868,352)	(992,402)	(1,116,452)	(1,240,503)	(1,364,553)	(1,488,603)	
Total Rate Base	\$212,789,486	\$212,611,552	\$212,372,778	\$212,071,166	\$211,708,711	\$211,283,343	212,484,757
<b>Return on Rate Base 2/</b>	<b>\$1,293,760</b>	<b>\$1,292,678</b>	<b>\$1,291,226</b>	<b>\$1,289,393</b>	<b>\$1,287,189</b>	<b>\$1,284,603</b>	<b>\$15,502,888</b>
<b>Expenses</b>							
Depreciation Expense							
Badger Wind	505,975	505,975	505,975	505,975	505,975	505,975	
Wind Decommissioning 4/	20,064	20,064	20,064	20,064	20,064	20,064	
Total Depreciation	526,039	526,039	526,039	526,039	526,039	526,039	6,312,468
Generation Taxes 6/	34,859	34,859	34,859	34,859	34,859	34,863	418,312
Other Expenses 3/	431,084	431,084	431,084	431,084	431,084	431,078	5,173,002
<b>Total Expenses</b>	<b>\$991,982</b>	<b>\$991,982</b>	<b>\$991,982</b>	<b>\$991,982</b>	<b>\$991,982</b>	<b>\$991,980</b>	<b>\$11,903,782</b>
Income before Taxes (EBIT)	(\$991,982)	(\$991,982)	(\$991,982)	(\$991,982)	(\$991,982)	(\$991,980)	(\$11,903,782)
Interest Expense 2/	(426,288)	(425,932)	(425,453)	(424,849)	(424,123)	(423,271)	(5,108,133)
Taxable income	(\$1,418,270)	(\$1,417,914)	(\$1,417,435)	(\$1,416,831)	(\$1,416,105)	(\$1,415,251)	(\$17,011,915)
Income Taxes 5/	(\$346,127)	(\$346,040)	(\$345,924)	(\$345,776)	(\$345,599)	(\$345,391)	(\$4,151,740)
Production Tax Credit 7/	(945,828)	(808,778)	(924,743)	(1,314,579)	(1,147,278)	(1,410,835)	(12,788,271)
Net Income Taxes	(\$1,291,955)	(\$1,154,818)	(\$1,270,667)	(\$1,660,355)	(\$1,492,877)	(\$1,756,226)	(\$16,940,011)
Operating Income	\$299,973	\$162,836	\$278,685	\$668,373	\$500,895	\$764,246	\$5,036,229
<b>Revenue Requirement</b>	<b>\$1,314,618</b>	<b>\$1,494,597</b>	<b>\$1,339,426</b>	<b>\$821,508</b>	<b>\$1,040,140</b>	<b>\$688,347</b>	<b>\$13,845,685</b>
							Badger Wind PTC Levelization, grossed up: (\$1,488,603)
							<b>Total Projected 2026:</b> \$12,357,082

**2026 Footnotes:**

Factor 271 - Integrated Peak and Energy  
 2024 71.843412%

1/ Monthly Deferred Income Tax activity is 1/12 of projected 2026 DIT activity.

		Badger Wind					
DIT activity 2026:		(\$12,362,825)					
ND Fac. #271:		71.843412%					
North Dakota activity 2026:		(\$8,881,875)					
Monthly:		(\$740,156)					
		January	February	March	April	May	June
Badger Wind:		91.78%	84.11%	75.62%	67.40%	58.90%	50.68%
		(\$679,315)	(\$622,545)	(\$559,706)	(\$498,865)	(\$435,952)	(\$375,111)
		July	August	September	October	November	December
Badger Wind:		42.19%	33.70%	25.48%	16.99%	8.77%	0.27%
		(\$312,272)	(\$249,433)	(\$188,592)	(\$125,753)	(\$64,912)	(\$1,998)

2/ Projected Capital Structure with authorized return on equity

	Ratio	Cost		
Long Term Debt:	44.735%	4.728%	2.115%	
Short Term Debt:	5.088%	5.681%	0.289%	2.404%
Common Equity:	50.177%	9.750%	4.892%	
	100.00%		7.296%	

3/ Projected Expenses - 2026

Projected Expenses:	\$7,200,385
ND Factor #271:	71.843412%
Budgeted ND Expenses:	\$5,173,002
Monthly Budgeted Expenses:	431,084

4/ Calculation for Badger Wind Decommissioning based on Thunder Spirit I of \$10,293,127 with 43 turbines and Badger Wind having 49 turbines.

	Total Company Decomm	ND Decomm	Estimated Remaining Life	Annual Amortization
Badger Wind	\$11,729,377	\$8,426,785	35	\$240,765

**Monthly Decommissioning Amortization: \$20,064**

**Monthly Deferred Tax Amortization: \$4,897**

5/ Tax Rate 24.4049% (Federal Tax Rate = 21%, Tax Rate = 4.31%)  
 1- Tax Rate 75.5951%

6/ Generation Tax

Badger Wind:	\$582,256
ND Fac. #271:	71.843412%
Total projected 2026 North Dakota:	\$418,313
Monthly:	\$34,859

7/ Production Tax Credit

	January	February	March	April	May	June
Badger Wind (Kwh):	59,190,000	41,650,000	45,930,000	39,700,000	44,880,000	40,760,000
Projected PTC (rate \$.029/Kwh):	\$1,716,510	\$1,207,850	\$1,331,970	\$1,151,300	\$1,301,520	\$1,182,040
Inflation Reduction Act (10%):	\$1,888,161	\$1,328,635	\$1,465,167	\$1,266,430	\$1,431,672	\$1,300,244
Projected ND PTC (Fac #271):	\$1,356,519	\$954,537	\$1,052,626	\$909,847	\$1,028,562	\$934,140
	July	August	September	October	November	December
Badger Wind (Kwh):	41,270,000	35,290,000	40,350,000	57,360,000	50,060,000	61,560,000
Projected PTC (rate \$.029/Kwh):	\$1,196,830	\$1,023,410	\$1,170,150	\$1,663,440	\$1,451,740	\$1,785,240
Inflation Reduction Act (10%):	\$1,316,513	\$1,125,751	\$1,287,165	\$1,829,784	\$1,596,914	\$1,963,764
Projected ND PTC (Fac #271):	\$945,828	\$808,778	\$924,743	\$1,314,579	\$1,147,278	\$1,410,835

MONTANA-DAKOTA UTILITIES CO.  
PLANT / DEPRECIATION ADDITIONS - 2026  
NORTH DAKOTA RENEWABLE RIDER - BADGER WIND  
PROJECTED YEAR 2026

**Badger Wind Additions:**

Plant Additions: \$295,500,000

Plant in Service: \$295,500,000

ND Fac. #271: 71.843412%

ND Plant: \$212,297,282 1/

Depreciation Rate: 2.86% 2/

Annual ND Depreciation: \$6,071,702

Monthly Depreciation: \$505,975 1/

1/ Plant balance assumed in service January 2026.

2/ Based on 35 year life.

**REVENUE REQUIREMENT LEVELIZATION ADJUSTMENT  
 NORTH DAKOTA RENEWABLE RIDER - BADGER WIND**

<b>Badger Wind:</b>	
<u>Estimated total PTC value, 2026 - 2035</u>	
	<u>Year</u> <u>PTC Total 1/</u>
	2026      12,788,546
	2027      12,980,375
	2028      13,175,080
	2029      13,372,706
	2030      13,573,297
	2031      13,776,896
	2032      13,983,549
	2033      14,193,303
	2034      14,406,203
	2035      14,622,295
Total Badger Wind PTC Value:	<u>\$136,872,250</u>
	10.2% 2/
	<u>\$13,913,857</u>
Difference, 2026 Projected to 2026 Levelized:	(\$1,125,311)
<b>2026 Levelized - Grossed Up for Tax:</b>	<b>(\$1,488,603)</b>
1/ Estimated annual PTCs at 2.9 cents per Kwh, plus 10% domestic content adder through the Inflation Reduction Acts of 2022, and a 1.5% escalation factor per year.	
2/ 2026 Badger Wind levelization factor.	

	<u>2026</u>	<u>2027</u>	<u>2028</u>	<u>2029</u>	<u>2030</u>	<u>2031</u>
Annual %:	10.2%	9.1%	8.3%	7.6%	6.8%	6.2%
PTC in Rev. Requirement:	13,913,857	12,431,539	11,310,708	10,384,039	9,375,259	8,495,828
Annual Difference:	(1,125,311)	548,836	1,864,372	2,988,667	4,198,038	5,281,068
	<u>2032</u>	<u>2033</u>	<u>2034</u>	<u>2035</u>	<u>2036</u>	<u>2037</u>
Annual %:	5.7%	5.1%	4.4%	3.7%	3.4%	3.3%
PTC in Rev. Requirement:	7,754,957	6,944,864	6,060,274	5,095,520	4,585,768	4,572,084
Annual Difference:	6,228,592	7,248,439	8,345,929	9,526,775	(4,585,768)	(4,572,084)
	<u>2038</u>	<u>2039</u>	<u>2040</u>	<u>2041</u>	<u>2042</u>	<u>2043</u>
Annual %:	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%
PTC in Rev. Requirement:	4,557,401	4,541,647	4,524,746	4,506,611	4,487,153	4,466,276
Annual Difference:	(4,557,401)	(4,541,647)	(4,524,746)	(4,506,611)	(4,487,153)	(4,466,276)
	<u>2044</u>	<u>2045</u>	<u>Total</u>			
Annual %:	3.2%	3.2%	100.0%			
PTC in Rev. Requirement:	4,443,876	4,419,843	136,872,250			
Annual Difference:	(4,443,876)	(4,419,843)				

**NORTH DAKOTA RENEWABLE RIDER - BADGER WIND  
 TOTAL BILL RATE**

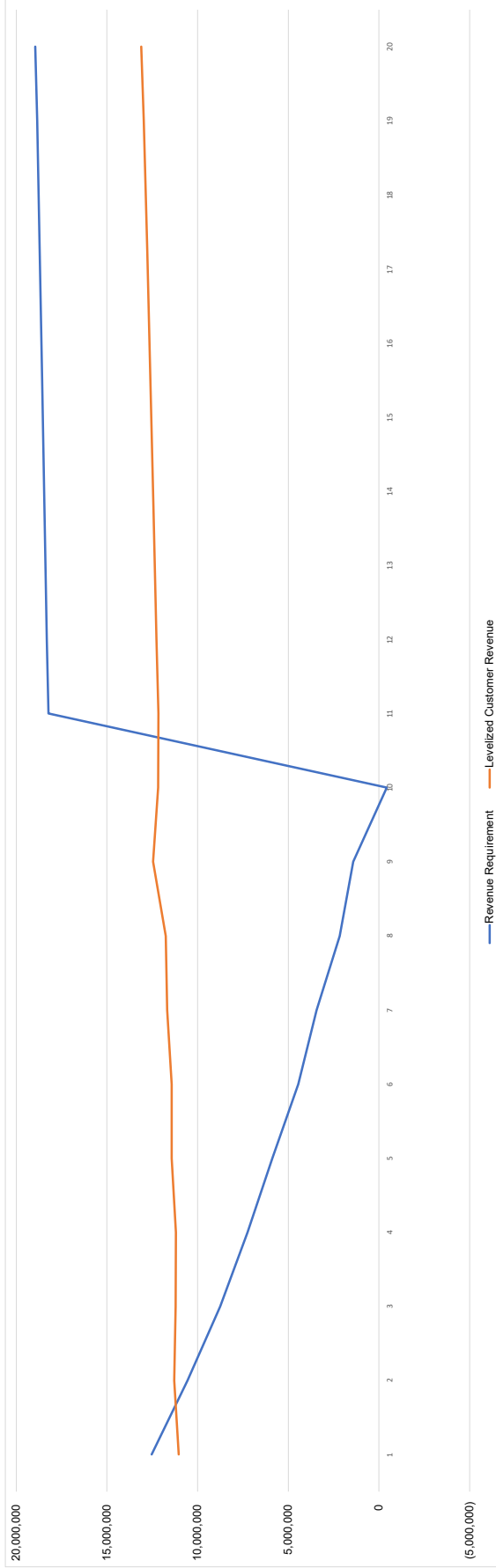
	<u>Current (\$)</u>	<u>Example (\$)</u>
BSC (per day)	0.501000	0.501000
Fuel 1/	0.030010	0.030010
Energy Charge		
Oct-May First 750 Kwh	0.063210	0.063210
Oct-May Over 750 Kwh	0.033210	0.033210
Transmission Rider 2/	-0.000510	-0.000510
Generation Rider 3/	0.003850	0.003850
Renewable Rider 3/	0.008900	0.008900
Badger Wind	0.000000	0.005740

- 1/ February 2025 FCA.
- 2/ Service rendered on and after Dec. 1, 2024.
- 3/ Service rendered on and after Feb. 1, 2025.

Kwh	Current Bill	Example Bill	Change	% Change	Annual Change
500	\$67.96	\$70.83	\$2.87	4.22%	\$34.44
600	\$78.51	\$81.95	\$3.44	4.38%	41.28
700	\$89.05	\$93.07	\$4.02	4.51%	48.24
800	\$98.10	\$102.69	\$4.59	4.68%	55.08
894	\$105.19	\$110.32	\$5.13	4.88%	61.56
900	\$105.64	\$110.81	\$5.17	4.89%	62.04
1,000	\$113.19	\$118.93	\$5.74	5.07%	68.88

Montana-Dakota Utilities Co.  
 Electric Utility - North Dakota  
 Badger Wind Levelization  
 20 Years

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20
Revenue Requirement	12,535,283	10,560,021	8,751,048	7,241,614	5,876,564	4,450,529	3,434,137	2,162,503	1,414,570	(453,989)	18,227,348	18,377,308	18,381,030	18,463,538	18,540,811	18,616,830	18,683,515	18,770,796	18,848,670	18,963,739
Levelized Customer Revenue	11,046,680	11,286,041	11,217,308	11,195,133	11,429,583	11,436,522	11,673,549	11,751,005	12,455,174	12,168,382	12,161,124	12,269,166	12,362,331	12,457,679	12,565,309	12,665,318	12,757,743	12,862,641	12,970,146	13,117,007



Montana-Dakota Utilities Co.  
 Purchase Power Cost Analysis  
 Projected Year End 2026

Purchased Power Costs Integrated System (IS)	Total	Allocation to		Allocation to	
		North Dakota	Primary	Secondary	Secondary
MISO Energy Purchased Power - Badger Wind Offset	\$14,891,201	\$10,524,730	\$1,584,237	\$8,940,493	
Purchased Power Volumes - kWh	2,965,921,000	2,096,239,000	318,244,000	1,777,995,000	
<b>MISO Purchased Power Cost/kWh</b>	<b>\$0.005021</b>	<b>\$0.005021</b>	<b>\$0.004978</b>	<b>\$0.005028</b>	

**Estimated Monthly Purchase Power Costs:**

Month	Volumes (MWh)	Fuel Price	Fuel Cost - IS
Jan-26	59,190	\$27.85	\$1,648,442
Feb-26	41,650	28.00	1,166,200
Mar-26	45,930	25.26	1,160,192
Apr-26	39,700	22.11	877,767
May-26	44,880	24.25	1,088,340
Jun-26	40,760	26.71	1,088,700
Jul-26	41,270	31.30	1,291,751
Aug-26	35,290	30.95	1,092,226
Sep-26	40,350	25.80	1,041,030
Oct-26	57,360	24.69	1,416,218
Nov-26	50,060	27.39	1,371,143
Dec-26	61,560	26.79	1,649,192
<b>Total 2026</b>	<b>558,000</b>	<b>\$26.69</b>	<b>\$14,891,201</b>

**Residential Customer Cost Savings:**

Usage	Monthly	Annually
800 kWh	\$4.02	\$48.24