

**BEFORE THE  
PUBLIC SERVICE COMMISSION OF THE STATE OF NORTH DAKOTA**

MONTANA-DAKOTA UTILITIES	)	
CO., A DIVISION OF MDU	)	
RESOURCES GROUP, INC.	)	DOCKET NO. PU-11-163
APPLICATION FOR ADVANCE	)	
DETERMINATION OF PRUDENCE	)	
BIG STONE AIR QUALITY	)	
CONTROL SYSTEM PROJECT	)	
	)	
	)	
OTTER TAIL POWER COMPANY	)	
APPLICATION FOR ADVANCE	)	DOCKET NO. PU-11-165
DETERMINATION OF PRUDENCE	)	
BIG STONE AIR QUALITY	)	
CONTROL SYSTEM PROJECT	)	

**REBUTTAL TESTIMONY  
OF  
DARCY J. NEIGUM  
ON BEHALF OF  
MONTANA-DAKOTA UTILITIES CO.**

November 8, 2011

**Docket No.  
PU-11-163/ PU-11-165  
MDU-303**

1 Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.  
2 A. My name is Darcy J. Neigum and my business address is 400 North Fourth Street,  
3 Bismarck, North Dakota, 58501.  
4  
5 Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?  
6 A. I am the System Operations and Planning Manager of Montana-Dakota Utilities  
7 Co. ("Montana-Dakota"), a Division of MDU Resources Group, Inc.  
8  
9 Q. PLEASE DESCRIBE YOUR DUTIES AND RESPONSIBILITIES WITH  
10 MONTANA-DAKOTA.  
11 A. I have manager responsibility for the day-to-day operations of the Company's  
12 electric control center and system operations planning department. The system  
13 operations planning department is responsible for performing the Company's  
14 electric resource planning and expansion studies.  
15  
16 Q. PLEASE OUTLINE YOUR EDUCATIONAL AND PROFESSIONAL  
17 BACKGROUND.  
18 A. I hold a Bachelor's Degree in Electrical and Electronics Engineering from North  
19 Dakota State University as well as a Masters of Business Administration from the  
20 University of Mary. My work experience includes four years as a nuclear plant  
21 engineer, three years of experience as a plant engineer at a coal-fired power plant  
22 in North Dakota, and thirteen years of generation development and operational  
23 responsibilities which include coal-fired, gas-fired, and renewable generation.  
24  
25 Q. FOR WHOM ARE YOU PROVIDING TESTIMONY?  
26 A. I am providing testimony on behalf of Montana-Dakota.  
27

1 Q. WHAT IS THE PURPOSE OF THIS REBUTTAL TESTIMONY?

2 A. The purposes of my rebuttal testimony is to discuss how Montana-Dakota's 2011  
3 Integrated Resource Plan ("2011 IRP") modeling assumptions differ from those  
4 used by Mr. Richard S. Hahn with La Capra Associates testifying on behalf of the  
5 North Dakota Public Service Commission Advocacy Staff in this case.

6

7 Q. DID LA CAPRA ASSOCIATES ("LA CAPRA") SUBMIT DATA REQUESTS  
8 TO MONTANA-DAKOTA REGARDING THE MODELING ACTIVITIES  
9 FOR THE BIG STONE AIR QUALITY CONTROL SYSTEM (AQCS)  
10 PROJECT INCLUDED IN THE 2011 IRP?

11 A. Yes, La Capra submitted data requests to Montana-Dakota regarding the  
12 modeling analysis performed as part of the 2011 IRP which included the Big  
13 Stone AQCS project.

14

15 Q. HOW DID MONTANA-DAKOTA'S 2011 IRP MODELING TREAT THE  
16 RETIREMENT OBLIGATION "STRANDED COSTS" ASSOCIATED WITH  
17 THE BIG STONE PLANT?

18 A. Montana-Dakota's modeling analysis in the 2011 IRP assumed that the existing,  
19 Big Stone generating plant was retired in 2015 and a new Big Stone with AQCS  
20 project was available as a new supply option at the forecasted installed cost with  
21 future operation and maintenance and fuel costs.

22

23 There were no dollars assigned with the 2015 retirement of the existing Big Stone  
24 plant's net book value as these dollars were considered sunk costs in the modeling  
25 analysis.

1 Q. WHAT ASSUMPTIONS DID MONTANA-DAKOTA MAKE REGARDING  
2 THE BIG STONE MERCURY CONTROL PROJECT?

3 A. Montana-Dakota's analysis included the forecasted capital and the on-going  
4 operations and maintenance costs of the mercury control project in the new Big  
5 Stone AQCS supply side option.

6  
7 Q. WHAT ASSUMPTIONS DID MONTANA-DAKOTA MAKE REGARDING  
8 MISO ENERGY PRICES AND PURCHASES AND HOW DO THOSE  
9 COMPARE TO MR. HAHN'S ESTIMATES?

10 A. Up to 30 MWs of MISO energy purchases were available as a supply side energy  
11 resource in the 2011 IRP. Montana-Dakota's modeling used internally forecasted  
12 MISO energy prices for on-peak and off-peak hours based on historical pricing  
13 and future market changes that would affect pricing. This internally developed  
14 forecast has been relatively accurate as compared to actual market energy  
15 purchases.

16  
17 Montana-Dakota's forecasted MISO energy prices are higher than the energy  
18 prices forecasted by Mr. Hahn who, on page 27 of his testimony, used an average  
19 market heat rate and an Annual Henry Hub Gas Forecast to develop his MISO  
20 energy pricing forecast.

21  
22 Q. WHY DID THE COMPANY LIMIT THE AMOUNT OF MISO ENERGY  
23 PURCHASES IN ITS MODELING?

24 A. The 30 MW of MISO energy purchases represents the average annual amount of  
25 energy that Montana-Dakota historically purchases from the MISO energy market  
26 to meet its customers' requirements.

1 Historically, Montana-Dakota has purchased less than ten percent of its  
2 customers' energy requirements from the MISO energy market based on the  
3 resource balance and the marginal resource costs within its generation portfolio.  
4 This balance has allowed customers to benefit from lower cost market energy  
5 purchases when the prices of electricity from the MISO energy market are less  
6 than Montana-Dakota's marginal energy costs.

7  
8 A greater dependency on market energy purchases subjects customers to  
9 increased pricing volatility when MISO energy market prices are high and the  
10 Company's lower cost generation resources are insufficient to meet customer  
11 energy requirements.

12  
13 Q. WHY DIDN'T THE COMPANY MODEL A REPLACEMENT  
14 ALTERNATIVE TO THE BIG STONE PLANT THAT RELIED HEAVILY ON  
15 MARKET PURCHASES?

16 A. Over the past three years, the Big Stone Plant has supplied 25% of Montana-  
17 Dakota's customer annual energy requirements. Relying solely on market energy  
18 purchases to replace Big Stone would increase customer exposure to market  
19 fluctuations to over 30% of their energy supply requirements.

20  
21 Market purchases are probably the most unreliable means of securing future  
22 customer requirements because there is no mechanism to lock-in future energy  
23 prices like with an owned resource or through a contracted pricing mechanism.  
24 Future market prices, as a supply option, place the exposure of fluctuations  
25 associated with energy prices on customers.

26

1 Also, MISO energy prices are not an infinite source of energy at a given price. As  
2 additional energy purchases are secured from off-system resources, there is an  
3 increased likelihood of constraints and redispatching costs to serve load.

4

5 Q. WHAT ASSUMPTIONS DID MONTANA-DAKOTA CONSIDER  
6 REGARDING WIND GENERATION?

7 A. Supply side wind generation resources were modeled as either a purchased power  
8 agreement (“PPA”) at pricing Montana-Dakota received in its 2010 RFP or as a  
9 self-built option based on experience from wind generation projects that the  
10 Company recently completed.

11

12 Q. HOW DID MONTANA-DAKOTA ACCOUNT FOR ANY FEDERAL  
13 PRODUCTION TAX CREDITS (“PTCs”) FOR QUALIFYING WIND  
14 GENERATION?

15 A. The wind PPA pricing accounted for the value of PTCs in its offered energy price.  
16 Montana-Dakota’s self-built wind generating resources, constructed before the  
17 end of 2012, included a revenue requirement credit for the PTCs that were  
18 grossed up for taxes and applied as a negative variable operations and  
19 maintenance expense for the wind project.

20

21 Q. WHAT ASSUMPTIONS DID MONTANA-DAKOTA MAKE REGARDING  
22 CAPACITY FACTORS FOR WIND GENERATION?

23 A. Montana-Dakota utilized a 39% capacity factor for its self-built wind generation  
24 options, which is based on the Company’s experience with its Diamond Willow  
25 and Cedar Hills wind projects.

26

1 Q. HOW DO THE PRICES QUOTED BY MR. HAHN FOR THE BISON 2 AND  
2 BISON 3 WIND PROJECTS COMPARE TO WIND PROJECTS IN THE  
3 AREA?

4 A. The prices quoted by Mr. Hahn for Bison 2 and Bison 3 seem low compared to  
5 other wind projects that we have seen in the area from recent responses to  
6 requests for proposal and based on our own experience. A review of the  
7 Minnesota Public Utilities Commission Docket for Bison 2 shows that Minnesota  
8 Power is using a 35-year life for the project with undisclosed capital upgrades  
9 required at 20 years to support a potential life extension to 35 years. There is no  
10 industry experience to show that the 35 years of useful service is operationally  
11 achievable or what sort of capital expenditures would be required for today's  
12 technology of wind turbine equipment.

13  
14 Also, the \$22 per MWh and \$29 per MWh are likely levelized rates over the 35-  
15 year assumed life of the wind turbine equipment for Bison 2 and Bison 3 and not  
16 an actual annual revenue requirement.

17  
18 Q. HOW DID THE ASSUMPTIONS IN THE BURNS & MCDONNELL STUDY  
19 AFFECT THE MODELING RESULTS THAT MONTANA-DAKOTA  
20 PERFORMED?

21 A. There was no effect. Montana-Dakota's 2011 IRP modeling was separate from  
22 the Burns & McDonnell study and did not rely on any assumptions or outputs  
23 from that study. In all of the scenarios modeled in the 2011 IRP, the Big Stone  
24 AQCS project was selected as a least cost resource option.

25  
26 Q. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?

27 A. Yes, it does.