

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

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

REBUTTAL TESTIMONY
OF
MARK A. ROLFES, P.E.
ON BEHALF OF
OTTER TAIL POWER COMPANY
and MONTANA-DAKOTA UTILITIES CO.

November 8, 2011

Docket No.
PU-11-163/ PU-11-165
OTP/MDU-101

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1 I. INTRODUCTION AND QUALIFICATIONS

2 Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

3 A. My name is Mark A. Rolfes, P.E. My business address is Otter Tail Power Company,
4 215 South Cascade Street, Fergus Falls, Minnesota, 56538-0496.

5
6 Q. BY WHOM ARE YOU EMPLOYED AND WHAT IS YOUR POSITION?

7 A. I am the Manager, Generation Development for Otter Tail Power Company ("Otter Tail"
8 or the "Company").

9
10 Q. PLEASE SUMMARIZE YOUR QUALIFICATIONS AND CURRENT
11 RESPONSIBILITIES.

12 A. I have a Bachelor of Science Degree in Mechanical Engineering from North Dakota State
13 University. I am a Professional Engineer licensed in Minnesota and South Dakota. I
14 have worked in the power generation business for over 34 years and for Otter Tail for all
15 of my professional career. I have particular experience with coal fired generation as the
16 manager of the Big Stone and the Hoot Lake coal fired plants. I have also been
17 extensively involved in the development of new power generation projects. I have served
18 on the Governor's Citizens' Advisory Committee on Hazardous Waste Management in
19 South Dakota and represented Otter Tail on numerous Electric Power Research Institute
20 and Edison Electric Institute committees.

21
22 Currently, I am the acting project manager for the Big Stone Air Quality Control System
23 ("AQCS") project, with overall responsibility for project development and the
24 construction and implementation of the project. My main focus on the project is to
25 supervise the engineering work and assist with regulatory compliance activities.

1 Q. FOR WHOM ARE YOU PROVIDING TESTIMONY?

2 A. I am providing testimony on behalf of Otter Tail and Montana-Dakota Utilities, Co.
3 ("Montana-Dakota").
4

5 **II. PURPOSE OF TESTIMONY**

6 Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?

7 A. I am responding to the testimony of Richard S. Hahn. I will explain why the delay in
8 issuance of the ADP is likely to result in significantly higher costs for Otter Tail and
9 Montana-Dakota customers and why the Applicants did not evaluate an alternative
10 scenario involving significant market purchases.
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12 **III. COSTS ASSOCIATED WITH DELAY**

13 Q. MR. HAHN SUGGESTS AT PAGE 10 THAT THE AQCS PROJECT WILL NOT BE
14 ADVERSELY AFFECTED IF AN ADP IS DELAYED UNTIL AFTER EPA
15 APPROVAL OF THE SOUTH DAKOTA STATE IMPLEMENTATION PLAN ("SIP").
16 DO YOU AGREE?

17 A. Not necessarily. Both the current project schedule and anticipated costs could be upset
18 by a delay in the issuance of the ADP. For example, a delay in the issuance of the ADP
19 may cause some vendors to increase their costs or even hesitate to bid. As the time of
20 delay increases, so does the chance that the project will be more costly. If the Companies
21 are not able to maintain the current project schedule, project costs are likely to increase
22 significantly.
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1 Q. WHY WILL PROJECT COSTS INCREASE IF THE PROJECT IS DELAYED?

2 A. In addition to ensuring compliance with the South Dakota Regional Haze Rule, the
3 project schedule was designed to reduce project costs by taking advantage of favorable market
4 conditions while demand for pollution retrofit is relatively stable and by enabling the AQCS
5 equipment to be tied in to the plant during a scheduled outage in 2015.

6 New federal mandates, like the Regional Haze Rule, often cause a bubble in demand. In
7 the next few years, the Cross-State Air Pollution Rule and the proposed Utility MACT
8 Rule for hazardous air pollutants are likely to drive up prices. There are a limited number
9 of vendors that supply the materials and labor necessary to construct the AQCS. A one-
10 year delay in the project could lead to an increase in the cost of materials and services by
11 20%, as seen during previous demand spikes.

12

13 There are also significant cost savings if the AQCS equipment can be tied in to the plant
14 during the 2015 outage. Plant outages generally occur every three to five years. They are
15 expensive and usually planned several years in advance. The planned outage at the Big
16 Stone Plant will occur in 2015 even if the AQCS project is not ready for tie-in because
17 other scheduled maintenance needs must be addressed. If the tie-in cannot occur during
18 the 2015 outage, an additional outage will need to be scheduled when the AQCS project
19 is ready to be tied-in. Based on a 45-day outage and a conservative output at Big Stone
20 of 9,000 MW per day, 405,000 MW may need to be purchased at market price. The
21 exact cost of an additional outage is hard to predict because it is dependent on the cost of
22 replacement power at the time of the outage.

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1 Q. WHAT IS THE CURRENT PROJECT SCHEDULE?

2 A. To take advantage of favorable market conditions and to coordinate tie-in of the AQCS
3 with the scheduled 2015 outage, Co-owners have filed a request for a construction
4 permit, and detailed design engineering and initial procurement are underway.

5

6 Under the current schedule, in 2012 the specifications for the erection of the project will
7 be completed, and the Co-owners will issue an RFP to select a contractor for this work so
8 that construction can begin in 2013. In early 2013, the Co-owners plan to award the
9 contract for the construction of the project, and construction will start as soon as possible
10 thereafter. Construction is planned to continue through 2013 and 2014.

11

12 Construction is scheduled to be completed by spring of 2015 so that the equipment can be
13 tied in during a scheduled shutdown at the Big Stone Plant in the spring to early summer
14 of that year. Commissioning and testing will follow, with the intention that the unit will
15 be ready for commercial operation by the close of 2015.

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IV. SELECTION OF ALTERNATIVES

19 Q. MR. HAHN PROPOSES AT PAGE 18 THAT BURNS & MCDONNELL SHOULD
20 HAVE CONSIDERED THE MISO MARKET AS AN ALTERNATIVE SCENARIO.
21 DO YOU AGREE?

22 A. No. We did not consider an increase in MISO purchases for the same reason that Mr.
23 Hahn eventually gives for rejecting this option on page 29 of his testimony: increased
24 reliance on the market "would expose customers in North Dakota to unacceptable risks."

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1 Q. PLEASE EXPLAIN THE PROCESS UNDERTAKEN BY OTTER TAIL TO
2 IDENTIFY THE ALTERNATIVES TO INSTALLING THE AQCS?

3 A. The South Dakota Regional Haze Rule requires installation of the AQCS project for
4 continued operation of the Big Stone Plant. To understand the potential alternatives to
5 the continued operation of Big Stone as a coal fired generator, it is important to consider
6 the role the Plant currently serves in the region. The Big Stone Plant is a traditional
7 baseload unit, which means it provides reliable energy and capacity, and it has the ability
8 to respond to load changes on a daily basis. Thus, any replacement resource to the Big
9 Stone Plant will need to have the same attributes: reliability, capacity, and load
10 following. There are a limited number of options that meet these requirements. In order
11 to protect our customers from exposure to market fluctuations, we did not select an
12 alternative with a MISO market component. A new coal fired plant, nuclear plant, or
13 hydro resource could not be considered, as these options cannot be constructed within the
14 required timeframe for compliance with the South Dakota Regional Haze Rule. In
15 addition, a biomass option for a 475 MW unit would not be a low cost option given the
16 limited availability and high cost of fuel. Based on these considerations, a natural gas
17 fired option is the only realistic alternative if the Big Stone Plant is retired or repowered.

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19 **V. CONCLUSION**

20 Q. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?

21 A. Yes, it does.
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