

**SOUTH DAKOTA PUBLIC UTILITIES COMMISSION**

**CASE NO. EL05-022**

**IN THE MATTER OF THE APPLICATION BY OTTER TAIL POWER COMPANY**

**ON BEHALF OF THE BIG STONE II CO-OWNERS**

**FOR AN ENERGY CONVERSION FACILITY SITING PERMIT FOR THE**

**CONSTRUCTION OF THE BIG STONE II PROJECT**

**DIRECT TESTIMONY**

**OF**

**KIAH E. HARRIS**

**PROJECT MANAGER BUSINESS & TECHNOLOGY SERVICES**

**BURNS & McDONNELL ENGINEERING COMPANY**

**MARCH 15, 2006**





1                   **BEFORE THE SOUTH DAKOTA PUBLIC UTILITIES COMMISSION**

2                   **DIRECT TESTIMONY OF KIAH E. HARRIS**

3   **I.       INTRODUCTION**

4   **Q:       State your name and business address.**

5   A:       Kiah Edward Harris, 9400 Ward Parkway, Kansas City, MO, 64114.

6   **Q:       By whom are you employed and in what capacity?**

7   A:       I am employed by Burns & McDonnell Engineering Co. as a Project Manager in the  
8   Business and Technology Services Group.

9   **Q:       What is your educational background?**

10   A:       I hold a Bachelor of Science in Electrical Engineering and a Master of Science in  
11   Electrical Engineering from the University of Missouri.

12   **Q:       What is your employment history?**

13   A:       I have been employed by Burns & McDonnell for twenty-five years. For the past  
14   seventeen years, I have been a Project Manager in the Business and Technologies Division.

15   **Q:       What work experience have you had that is relevant to your testimony?**

16   A:       As Project Manager in the Business and Technologies Division of Burns & McDonnell, I  
17   have been responsible for the transmission and generation resource plans for utilities. I have  
18   prepared transmission and generation resource plans for municipal, cooperative and investor-  
19   owned utilities. These resource plans have included a variety of fossil fired and renewable  
20   generation options. I have also analyzed demand-side management programs and their expected  
21   impacts for utilities.

22   **Q:       What professional organizations do you belong to?**

23   A:       I am a licensed professional engineer in the states of Colorado and Wisconsin.

1 **Q: Have you provided testimony dealing with energy or related issues?**

2 A: Yes. My previous testimony is described in Applicants' Exhibit 25-A.

3 **II. PURPOSE AND SUMMARY OF TESTIMONY**

4 **Q: What is the purpose of your testimony?**

5 A: In a December 19, 2005 Order of the Minnesota Public Utilities Commission (MPUC),  
 6 the MPUC ordered the Applicants in their request for Certificate of Need for proposed  
 7 transmission facilities in Minnesota to provide the MPUC with information regarding generation  
 8 and demand-side alternatives to the proposed Big Stone II Unit. The MPUC listed a number of  
 9 specific information points that it wanted addressed. The Applicants retained Burns &  
 10 McDonnell to assist in responding to that list of information points. Effectively, the information  
 11 sought, among other things, what the costs of the next best resource alternatives to the Big Stone  
 12 Unit II would be. A copy of the responsive report is included as Applicants' Exhibit 25-B. My  
 13 testimony here provides a summary of the results of that responsive report.

14 **Q: Please summarize your testimony.**

15 A: My testimony addresses ARSD 20:10:22:30, which requires in part that Applicants  
 16 discuss reasons for selecting the proposed energy resource versus alternative resources. If Big  
 17 Stone Unit II is not constructed, there is no single next best resource alternative that Applicants  
 18 would collectively pursue. Instead, each Applicant would pursue a variety of strategies to meet  
 19 their obligations. On a collective basis, the separate resource strategies will be significantly  
 20 more expensive than is the resource alternative that includes Big Stone Unit II.

21 **III. COMPARATIVE COST OF RESOURCE SCENARIOS**

22 **Q: What was the purpose of preparing Applicants' Exhibit 25-B?**

1 A: Burns & McDonnell was retained to coordinate and assist with preparing the Applicants'  
 2 collective responses to the MPUC's request for additional information on Big Stone Unit II.  
 3 Working with the Applicants, we analyzed the total costs of the individual Applicants' resource  
 4 scenarios that both include and exclude the proposed Big Stone Unit II. We also developed costs  
 5 of environmental externalities associated with the two resource scenarios since, in Minnesota,  
 6 utilities are required to apply certain externality costs associated with certain power plant  
 7 emissions in their evaluation of resource decisions. In order to develop the costs of the  
 8 externalities, the Applicants developed what the expected emissions were from the resource  
 9 scenarios with and without Big Stone Unit II. We then determined what the incremental  
 10 emissions would be for the combination of Applicants' resource scenarios. We applied the  
 11 externality values, as adopted by the MPUC, to these incremental emissions.

12 **Q: Did Burns & McDonnell assist any of the Applicants in the development of their**  
 13 **resource planning and analysis?**

14 A: Burns & McDonnell had been retained under a separate agreement by Heartland  
 15 Consumers Power District to assist it in evaluating a variety of resources associated with meeting  
 16 their power supply obligations. Because of this earlier assignment, we assisted Heartland in  
 17 preparing their response to the additional information in Applicants' Exhibit 25-B.

18 **Q: Did Burns & McDonnell assist any other of the Applicants in developing their**  
 19 **response?**

20 A: No.

21 **Q: What was the result of your work in comparing the costs of Big Stone Unit II to**  
 22 **each of the Applicants' individual "next best" resource scenario?**

1 A: Burns & McDonnell combined the Applicants' individual resource scenarios to determine  
 2 the revenue requirements with and without Big Stone Unit II in the resource mix. We  
 3 determined the incremental revenue requirements between the resource scenarios and developed  
 4 the net present value of revenue requirements in 2011 dollars. This allowed us to compare the  
 5 costs of the two future resource scenarios.

6 The resource scenario with Big Stone Unit II had revenue requirements of approximately  
 7 \$669,141,000 lower than the resource scenario without the unit.

8 **Q: What types of alternatives would the Applicants be likely to implement in order to**  
 9 **meet their resource needs in the future without Big Stone Unit II?**

10 A: The Applicants would need to look to add a variety of resource alternatives, including  
 11 market purchases, gas and coal-fired generation, and renewable energy resources. In addition,  
 12 the Applicants would also likely include demand-side management (DSM) programs managed  
 13 directly by the utility or indirectly through member utilities, though DSM activities are also  
 14 included in the resource scenario that includes Big Stone Unit II. Each Applicant would pursue a  
 15 variety of resource options, and the most likely alternatives for each Applicant are discussed in  
 16 Part A of Applicants' Exhibit 25-B.

17 **Q: How was the information related to externalities developed?**

18 A: The Applicants provided the estimated emissions from the alternative resources in the  
 19 resource scenarios with and without Big Stone Unit II. The emissions were estimated for market  
 20 purchases using the most recent externality values adopted by the MPUC. The incremental  
 21 emissions were developed for the resource scenario that both include and excludes Big Stone  
 22 Unit II. The emissions for the Big Stone Unit II were determined by Burns & McDonnell. The

1 emission weights were multiplied by the MPUC approved externality values (as adjusted for  
 2 inflation) to arrive at the externality costs by year for the two resource scenarios. Both the high  
 3 and low values were used from the applicable MPUC externalities. The externality costs were  
 4 added to the revenue requirements to reflect the cost of the resource scenarios with externality  
 5 costs included.

6 **Q: Were there any special considerations made for the externalities?**

7 A: Yes. In addition to the quantities requested by the approved MPUC process, the  
 8 Applicants provided the incremental amount of CO<sub>2</sub> that would be emitted from resources  
 9 outside the state of Minnesota for the with and without Big Stone Unit II resource scenarios.  
 10 This was necessary because the MPUC does not have an externality value for CO<sub>2</sub> that would  
 11 apply to outstate resources.

12 **Q: What was the conclusion from adding externality costs to the revenue**  
 13 **requirements?**

14 A: The resource scenarios with Big Stone Unit II, even with the externality costs from the  
 15 three approaches used added to the revenue requirements, was lower cost than the sum of the  
 16 individual Applicants' resource scenarios that did not include Big Stone Unit II.

17 **Q: Does this complete your testimony?**

18 A: Yes.