

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

RANDALL M. STUEFEN

PROFESSOR EMERITUS

UNIVERSITY OF SOUTH DAKOTA

MARCH 15, 2006



1
2
3
4
5
6
7

TESTIMONY OF RANDALL STUEFEN

TABLE OF CONTENTS

I. INTRODUCTION 1

II. PURPOSE AND SUMMARY 2

III. ECONOMIC IMPACTS 3

IV. EMPLOYMENT IMPACTS 9

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

2 **DIRECT TESTIMONY OF RANDALL STUEFEN**

3 **I. INTRODUCTION**

4 **Q: Please state your name and business address.**

5 A: Randall M. Stuefen, 813 Valley View Drive, Vermillion, South Dakota 57069.

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

7 A: My current university status is Professor Emeritus at the University of South Dakota. I
8 retired from the Business Research Bureau, University of South Dakota in December of 2004.
9 From 1983 to 2004, I served as either Associate Director of the Business Research Bureau or
10 Director of Research at the Business Research Bureau. I now own and conduct research as
11 Stuefen Research, LLC. (Stuefen Research, LLC, was Stuefen Research at the time the analysis
12 for the Big Stone II Application was conducted.) Stuefen Research, LLC is located in
13 Vermillion, South Dakota.

14 **Q: Describe your educational background.**

15 A: I earned a Bachelor of Science degree from South Dakota State University in economics
16 in 1975, and earned a Master of Science Degree from South Dakota State University in
17 economics in 1980.

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

19 A: While at the University, it was my task to contract with government agencies,
20 organizations and businesses to conduct research as needed on a project basis. I would
21 participate in all aspects of each project. I also taught marketing and statistics in the mid 1980s
22 at the School of Business. I currently work on and contract for projects under the entity Stuefen

1 Research, LLC. Stuefen Research, LLC partners with the Business Research Bureau on selected
 2 projects for the purpose of conducting research.

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

4 A: I have conducted a broad range of survey research that falls under the headings of issue
 5 research, marketing research, prevalence of problem gambling surveys, employee, constituency
 6 or customer satisfaction surveys, fair market rents in housing, bank entry statistical analysis and
 7 management research. I have conducted economic impact analysis for the state's Small Business
 8 Development Center, University of South Dakota, the state's nursing home industry, ethanol
 9 related agricultural industries, child day care services and the Big Stone II project.

10 **Q: What classes and other training have you taken related to the subject of your**
 11 **testimony?**

12 A: I have attended the basic and advanced training sessions conducted by Minnesota
 13 IMPLAN Group, Inc. ("MIG, Inc."), which provides training, tools and resources for statistical
 14 economic analysis. MIG, Inc. holds regularly scheduled IMPLAN® training sessions for both
 15 beginning and advanced IMPLAN users. The introductory workshop covers basic input-output
 16 economics, impact analysis, and the IMPLAN software. The advanced course reviews the
 17 introductory course and continues building on the users' modeling skills.

18 **II. PURPOSE AND SUMMARY**

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

20 A: The purpose of my testimony is to explain the potential economic impacts of the
 21 proposed Big Stone Unit II. I prepared a written report estimating the economic impacts on the
 22 South Dakota economy and the economy of a four county area including Grant and Codington

1 counties in South Dakota, and Big Stone and Lac Qui Parle counties in Minnesota. The
 2 Minnesota counties were chosen for inclusion because of their close proximity and likelihood of
 3 economic participation. Codington County was chosen because it is the largest trade center in
 4 the area and it is expected to benefit from the plant's construction.

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

6 A: Both the state and the local communities are expected to experience job growth and
 7 economic growth during the construction of the proposed Big Stone Unit II and for the long term
 8 during its operation and maintenance. This is a large construction project that will impact the
 9 area over a four year period. The ongoing increase in plant operations employment will benefit
 10 the area for years to come. There appear to be no material adverse effects on economic or
 11 employment factors as related to the construction and operation of the proposed Big Stone Unit
 12 II.

13 **III. ECONOMIC IMPACTS**

14 **Q: What was your involvement in the application process for the proposed Big Stone**
 15 **Unit II?**

16 A: I was tasked with estimating the four county local and state economic impact of
 17 constructing the Big Stone II power plant. In addition, a longer-term or ongoing four county
 18 economic impact of new employees being hired to operate the plant was estimated.

19 **Q: Did you prepare any written studies/work product that is reflected in the**
 20 **Application?**

1 A: Yes. I prepared a report titled the "Economic Impact of Constructing the Big Stone II
 2 Power Plant" and a one page summary titled the "Economic Impact Highlights of Big Stone II
 3 Power Plant Construction," both of which are included as Exhibit C of the Application.

4 **Q: Do you want to make any changes to your initial report, entitled the "2004
 5 Economic Impact of Constructing the Big Stone II Power Plant" by Stuefen Research and
 6 Business Research Bureau and is Exhibit C of the Application?**

7 A: Yes.

8 **Q: What are the changes?**

9 A: The statistical model assumes that a certain amount of architectural design work
 10 comprises the employment created by the project. However, the jobs performed by Burns and
 11 McDonnell should be excluded from the calculations for the number of jobs and economic
 12 impact, because those jobs are based in Kansas City, Missouri, not South Dakota. Also, the
 13 treatment of inflation as it pertains to state employment calculations was corrected, so that the
 14 2008 dollars were deflated to 2001 dollars to properly fit the data in the model and calculate the
 15 employment multiplier. An updated "Economic Impact Highlights of Big Stone II Power Plant
 16 Construction, Updated February 15, 2006" is attached to the end of this testimony as Applicants'
 17 Exhibit 26-A.

18 **Q: Why are the changes necessary?**

19 A: Data for Burns and McDonnell was included in my original, previously submitted
 20 calculations. When I was reviewing my data and calculations for preparation of this testimony, I
 21 realized that the Burns and McDonnell jobs should be excluded because they are based in Kansas

1 City and not at the Big Stone II site in South Dakota. I also realized that the 2008 dollars had not
 2 been deflated to 2001 which would have the effect of inflating the employment multiplier.

3 **Q: What is the effect of these changes to your calculations?**

4 A: The local four-county economic impact during construction was originally estimated at
 5 \$675 million; the revised estimate is \$672.8 million, which is a difference of \$2.2 million. The
 6 local job growth was originally estimated at 1,997 full and part time jobs in the local
 7 communities; the revised calculation is 1,844 full and part time jobs, which is a difference of 153
 8 jobs. The average number of jobs was originally estimated at 1,137 per year for each of four
 9 years; the revised number is 1,098, a difference of 39.

10 The revised numbers for the state benefit during construction is an economic impact of
 11 \$745.1 million, compared to the original estimate of \$788 million, a decrease of \$42.9 million.
 12 The state benefit for job growth of full and part time jobs during construction is estimated at
 13 2,291, originally estimated at 3,322. The long term local benefits remain unchanged.

14 **Q: Do the changes affect the results of your analysis in a material way?**

15 A: No. These changes are not significant for purposes of an overall analysis. The net result
 16 for job creation and economic impact is overall still positive.

17 **Q: What general sources of information were used to identify the time frame for
 18 constructing the plant and the expected workforce number for doing the work?**

19 A: The time frame for constructing the facility was identified in an Otter Tail Power
 20 Company news release dated October 11, 2004. It states that the power plant will require a four-
 21 year construction period and that it is expected to be on line in 2011. Otter Tail Power Company
 22 projected the start of construction in April 2007 with an expected completion date of April 2011.

1 While construction is expected to get underway in 2007, it is assumed that the peak employment
 2 year will not be 2007. It is assumed that the peak year of construction will be in 2008 or begin in
 3 2008 and extend into 2009. Because of this assumption, the study refers to dollar cost estimates
 4 in 2008 dollars.

5 **Q: Did you have information regarding the number of people to be directly involved in**
 6 **the construction of the plant?**

7 A: Yes, I used two sources of information regarding construction employment numbers. The
 8 October 11, 2004 press release indicated that approximately 625 people would be employed over
 9 the four year period yielding a total of 2,500 workers. The press release indicated that in the
 10 peak year a workforce of 1,500 people will be employed. Additional information provided by
 11 Burns & McDonnell, through representatives of Otter Tail Power Company, supported a four
 12 year workforce of 2,550 using 2000 paid hours in a typical 2080 hour work year. The 2,550
 13 employee estimate is used in the analysis.

14 **Q: Do you expect that all people employed to construct the Big Stone II power plant**
 15 **will be from the four county area near the Plant?**

16 A: No, workers from outside the area are expected to work on the project. No estimate of
 17 the proportion of workers to expect from outside the area of interest was attempted. It is
 18 assumed in the impact estimates that fifty percent of the workers will be from outside these areas
 19 and spend their income outside the four county area and outside the state of South Dakota. No
 20 historical data was found to support the assumption.

21 **Q: What were the primary sources of construction information?**

1 A: Burns & McDonnell is the primary source of construction cost information used in the
 2 analysis. The information was provided to me through a representative of Otter Tail Power
 3 Company. In addition, the company's web site was a good source of information. The staffing
 4 information for the ongoing operations was estimated in the October 11, 2004 press release
 5 previously mentioned at thirty to forty employees. After further discussion with a representative
 6 of the Otter Tail Power Company, the number thirty-five ongoing employees was used to
 7 formulate the estimates.

8 **Q: What are the expected construction costs for building Big Stone Unit II?**

9 A: The total project cost of plant construction is estimated at approximately one billion
 10 dollars but not all construction costs will impact on the local or state economies. Out-of-state
 11 expenditures on the procurement of equipment and component parts and money set aside for
 12 escalation in the procurement process are not included in the local or state economic impact
 13 estimates except as specifically identified. Construction costs associated with the plant are
 14 estimated by Burns and McDonnell to be over six hundred and sixteen (616.3) million dollars.
 15 In addition, the Engineering and Management fee of thirty-eight (38.0) million dollars will be
 16 spent outside of South Dakota or the local economy including two counties in Minnesota. This
 17 money is treated in the economic impact analysis as were the procurement expenditures which is
 18 a deduction from construction costs. Also, escalation funds are excluded because the money
 19 does not directly result in construction activity. The forty-six and one half (46.5) million dollars
 20 are held in reserve to pay for construction expenses resulting from inflation or errors in the
 21 estimated cost of an activity over the life of the construction project. Escalation funds are not
 22 considered when calculating the number of jobs that the project creates. Direct construction

1 costs were estimated at five hundred thirty-one million seven hundred thousand dollars
 2 (\$531,700,000). A summary of findings follows.

3 **Q: Can you summarize the estimates of economic activity associated with the**
 4 **construction of Big Stone Unit II?**

5 A: Yes, the general model inputs and economic activity associated with the plants
 6 construction are as follows:

7 **General Model Inputs**

8 Project Construction Period: April 2007 – April 2011

9 Total Project Cost: Approximately \$1 billion

10 Direct Construction Costs: Approximately \$531.7 million

11 *Local Four County Benefit During Construction (2008 dollars)*

12 **(Updated)** Local Economic Impact: \$672.8 million during construction

13 State Benefit During Construction (a broader perspective in 2008 dollars)

14 **(Updated)** South Dakota Economic Impact: \$745.1 million during construction

15 *Long-Term Local Benefit (2004 dollars)*

16 **(Updated)** Long term local economic impact: \$3.6 million / year of new income to the four
 17 county area not including on-going contractor support for plant activities

18 **Q: Why is the estimation of economic activity or economic impact analysis important?**

19 A: Economic impact analysis is important in that it shows the financial benefit of a project
 20 such as the construction of Big Stone Unit II to other businesses in the defined area and the
 21 households of not only people that work directly in the construction of the plant but also the
 22 benefit to other sectors within an economy and the people that have jobs and work in the area. It

1 shows that the final impact of the financial injection is greater than the initial investment in the
2 plant as the money makes its way through the economy.

3 **Q: Does your economic impact analysis consider the factors set forth in ARSD**
4 **20:10:22:23 (Community Impact)?**

5 A: Yes, as presented in Section 5.1 and Exhibit C of the Application, and in regard to the
6 two levels of geography addressed in the study – the four county area and the state. The four
7 counties selected for the area are those that would be impacted by the proposed Big Stone Unit II
8 project and could be defined as a “Greater Community” serving the people participating in
9 construction activities.

10 **Q: Did you review other studies or work product in making your evaluation and**
11 **conclusions?**

12 A: Other economic impact studies were reviewed but no other study was relied upon for this
13 analysis.

14 **Q: Does this plant pose an economic threat to the four county area or the state of South**
15 **Dakota?**

16 A: No.

17 **IV. EMPLOYMENT IMPACTS**

18 **Q: Did you prepare any written studies/work product that are reflected in the**
19 **Application relating to employment impacts?**

20 A: Yes, as presented in Section 5 and Exhibit C of the Application.

21 **Q: Did your analysis consider the factors set forth in ARSD 20:10:22:24?**

1 A: Yes. I looked at the estimated number of jobs, the job classifications, the estimated
 2 employment expenditures, both for the period of construction and for the estimated operating life
 3 of the proposed facility. I considered the adequacy of local labor resources to meet temporary
 4 and permanent job requirements for both construction and operation of the proposed Big Stone
 5 Unit II, and I considered that outside labor forces not permanently located in South Dakota might
 6 be utilized as well for the construction of the proposed Big Stone Unit II. I also analyzed the
 7 types of jobs and special skills that would be required.

8 **Q: Describe the results of your work.**

9 A: The estimation of employment impacts is a function of the direct cost of construction and
 10 available employment information about the project. The direct cost of construction for the Big
 11 Stone Unit II is 531.7 million dollars which is the amount used in the economic activity analysis.

12 **Local Four County Benefit During Construction (2008 dollars)**

13 Local Job Growth: 2,550 Full Time Equivalent positions during construction
 14 1,844 Full and part time jobs in the communities
 15 An average of 1,098 per year for four years

16 *State Benefit During Construction (a broader perspective in 2008 dollars)*

17 State Job Growth: 2,550 Full Time Equivalent positions during construction
 18 2,291 Full and part time jobs in the communities
 19 An average of 1,210 per year for four years

20 *Long-Term Local Benefit (2004 dollars)*

21 Long term local job growth: 35 Full Time Equivalents employed in operations
 22 29 Full and part-time positions in the communities

1 **Q: Where did you obtain information relevant to your work?**

2 A: The cost data provided by Burns & McDonnell is the information base for the following
3 economic impact analysis. Other information was obtained from the Otter Tail Power
4 Company's website and representatives of Otter Tail. The construction cost information from
5 these sources and staffing information from Otter Tail Power Company was used in an IMPLAN
6 model to formulate the employment estimates.

7 **Q: What sectors of the economy will benefit from the economic activity resulting from**
8 **the construction of the plant?**

9 A: The top fifty sectors that are expected to benefit from the economic activity measured by
10 full and part time employment impacts is attached as Applicants' Exhibit 26-B. The table
11 presents the estimated indirect impacts and the induced impacts from that economic activity.

12 **Q: Does this conclude your testimony?**

13 A: Yes.