

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

LARRY ANDERSON

SENIOR PLANNER/ECONOMIST

SOUTHERN MINNESOTA MUNICIPAL POWER AGENCY

MARCH 15, 2006



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TESTIMONY OF LARRY ANDERSON

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BEFORE THE SOUTH DAKOTA PUBLIC UTILITIES COMMISSION

DIRECT TESTIMONY OF LARRY ANDERSON

I. INTRODUCTION

Q: Please state your name, and business address.

A: Larry Anderson, 500 First Avenue SW, Rochester, Minnesota 55902.

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

A: I am a Senior Planner/Economist with Southern Minnesota Municipal Power Agency (SMMPA). I am responsible for developing, implementing and maintaining production cost and expansion plan modeling functions for SMMPA, and for coordinating its Integrated Resource Plan filings with the Minnesota Public Utilities Commission (MPUC). I do the resource planning to meet the estimated load forecast for SMMPA, but Charles Cosgrove, SMMPA's Supervisor of Forecasting & Senior Economist, conducts and is responsible for SMMPA's load forecast. I also perform cost-of-service studies, unbundled rate analysis, pricing, and tariff development for SMMPA and its members, all of whom are municipal utilities.

Q: What is your educational background?

A: I received my Bachelor of Business Administration Degree from the University of Minnesota-Duluth in 1979, with a major in business administration. I received a Masters of Business Administration from the University of Saint Thomas in May 1993, with a concentration in finance.

Q: What is your employment history?

A: I have been employed by SMMPA since 1987. Prior to my present position, I worked as a cost/plant accountant. Prior to my employment with SMMPA, I worked in accounting for

1 North Central Public Service Company, St. Paul, Minnesota, and for the Public Service
 2 Company of Colorado, Denver.

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

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

5 A: The purpose of my testimony is to describe the resource planning process SMMPA
 6 undertakes to develop its load forecast, to describe the power and energy requirements of its
 7 members (i.e., its customers), and to explain how SMMPA plans on meeting those requirements
 8 through Big Stone Unit II, among other resources.

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

10 A: SMMPA uses the Electric Generation Expansion Analysis Software (EGEAS) modeling
 11 software to forecast and plan the future power and energy resources necessary to meet
 12 SMMPA's members' obligations and to perform the Integrated Resource Plan filing
 13 requirements of the MPUC. SMMPA forecasts demand growth of approximately 1.2% and
 14 energy growth of 2.4% of its members over the next decade. SMMPA will experience capacity
 15 deficits beginning in 2008, when a major power purchase agreement expires, and the deficit goes
 16 from 49 MW in 2008 to 106 MW in 2014. SMMPA is pursuing new generation, including Big
 17 Stone Unit II, to replace its expiring power purchase agreement and to accommodate the forecast
 18 increase in demand and energy.

19 **Q: What regulations relating to the Big Stone Unit II project are covered in your**
 20 **testimony?**

21 A: My testimony provides the information for SMMPA required by ARSD 20:10:22:10. I
 22 helped prepare Section 3.1.4.6 and Exhibits 3-14 and 3-15 of the Application, which address

1 SMMPA's forecasted capacity needs and annual energy requirements, and which are
 2 incorporated herein by reference.

3 **III. RESOURCE PLANNING**

4 **Q: Does SMMPA engage in resource planning?**

5 A: Yes.

6 **Q: Please explain how this resource planning works.**

7 A: SMMPA uses EGEAS to forecast and plan the future power and energy resources
 8 necessary to meet its members' obligations and to develop the IRPs filed on a periodic basis with
 9 the MPUC. EGEAS is a state-of-the-art modular production costing, generation capacity
 10 expansion optimization software package developed under sponsorship of the Electric Power
 11 Research Institute (EPRI). The program is designed to evaluate integrated resource plans,
 12 independent power producers, avoided costs, and plant life management programs. It also has
 13 modules developed to specifically accommodate the integration of demand-side-management
 14 options and to facilitate the development of environmental compliance plans. SMMPA's most
 15 recent IRP was filed in July 2003, and subsequently approved by the MPUC, and its next IRP is
 16 due to be filed in July 2006.

17 **IV. FORECASTING**

18 **Q: Please describe the manner in which SMMPA forecasts the future power and energy
 19 needs of its customers.**

20 A: SMMPA uses economic models to develop forecasts for each of its 18 members to
 21 develop broad-based customer class forecasts of energy used for the total SMMPA system. The
 22 econometric models are estimated on historical data, which yields parameters that estimate the

1 effects that weather variables, economic factors, demographic factors, and other independent
 2 variables, such as appliance efficiency, can have on electric energy usage.

3 **Q: What are the future energy requirements for SMMPA according to its forecast?**

4 A: SMMPA forecasts energy growth of 2.4% of its members over the next decade. The
 5 latest figures available are for calendar year 2004, and are contained in Table 3-7 of the
 6 Application. The figures show that energy use in 2004 was 2,943,972 MWhr, and increases to
 7 3,637,903 MWhr by 2014 and 4,037,580 MWhr by 2020.

8 **Q: What are the future capacity requirements for SMMPA according to its forecast?**

9 A: SMMPA forecasts annual demand growth of approximately 1.2% over the next decade.
 10 As illustrated in Table 3-7 of the Application, SMMPA's forecasted demand was 536 MW in
 11 2005 and increases steadily to 640 MW by 2020.

12 **V. GENERATION RESOURCES**

13 **Q: What are SMMPA's existing generating resources?**

14 A: SMMPA owns the following generation facilities:

- 15 Baseload: Sherco 3: 362.4 MW Unit Capacity
- 16 Austin Northeast: 29.5 MW Unit Capacity
- 17 Intermediate: Owatonna Unit 6: 21.4 MW Unit Capacity
- 18 Peaking: Combustion Turbines-
- 19 Owatonna unit 7: 15.7 MW Unit Capacity
- 20 Austin Downtown Unit 5: 5.2 MW Unit Capacity
- 21 Diesels: Diesels Distillate: 22.4 MW Unit Capacity
- 22 Diesels Gas: 62.7 MW Unit Capacity

1 Quick Start Diesels: 34.4 MW Unit Capacity
 2 Peaking Steam Units: Austin Downtown Unit 2: 4.4 MW Unit Capacity
 3 Austin Downtown Unit 3: 8.8 MW Unit Capacity
 4 Austin Downtown Unit 4: 13.3 MW Unit Capacity
 5 Fairmont Unit 3: 4.8 MW Unit Capacity
 6 Fairmont Unit 4: 4.9 MW Unit Capacity
 7 Fairmont Unit 5: 12.2 MW Unit Capacity
 8 Renewable: Windmill Farms Turbines: 8.5 MW Unit Capacity

9 **Q: Are SMMPA's costs of generating resources accurately represented as part of**
 10 **Exhibit 3-3 to the Application?**

11 A: Yes. The exhibit accurately reflects the relative costs that SMMPA anticipates for the
 12 various resource types represented.

13 **Q: Does SMMPA have any power purchase agreements?**

14 A: SMMPA has firm power purchase agreements with Split Rock Energy LLC, but these
 15 agreements terminate in 2008. Under the agreement with Split Rock, SMMPA has available
 16 firm capacity starting at 30 MW for 2003 and 2004, increasing to 35 MW for 2005, and ending at
 17 45 MW for 2006 and 2007. SMMPA is actively pursuing new resources to replace the Split
 18 Rock purchases and the increase in demand and energy for the future.

19 **Q: Are SMMPA's existing generating resources sufficient to meet its forecasted energy**
 20 **and demand requirements?**

21 A: No. SMMPA's existing resources are not sufficient to meet its forecasted demand. As
 22 illustrated in Exhibit 3-14 of the Application, SMMPA experiences summer capacity deficits in

1 2008 of 49 MW. The deficit increases to 106 MW by 2014. In addressing the capacity deficit,
2 SMMPA hired the consulting firm of R.W. Beck to perform a short-term power supply options
3 analysis. The analysis compared the economic and operating characteristics of several options
4 for purchasing approximately 50 MW of capacity to meet SMMPA's power supply obligations
5 during the period of 2008-2012, which coincides with the termination of the Split Rock
6 agreements. In its analysis of future resources after 2008, the R.W. Beck study concludes that
7 SMMPA needs additional baseload resources in the approximate size of 50 MW for each of the
8 years 2011, 2013, 2018, 2023, and 2028.

9 **VI. DSM AND CONSERVATION PLANNING**

10 **Q: Does SMMPA consider the effects of demand-side management and conservation**
11 **measures as part of its resource planning process?**

12 **A:** Yes. Demand-side management is part of SMMPA's Integrated Resource Planning
13 process.

14 **Q: Please explain SMMPA's ongoing DSM efforts.**

15 **A:** SMMPA is the wholesale electrical supplier to its 18-member municipal utilities, and
16 since DSM technologies are end-use based, SMMPA's 18 members are ultimately responsible
17 for the implementation of the DSM initiatives with their customers. Since 1985, SMMPA
18 members have developed and implemented their own load control initiatives (e.g., air
19 conditioning and electric water heater cycling) as a way to defer the need for obtaining additional
20 power supply and to manage their cost of power. To make the DSM efforts more
21 comprehensive, SMMPA began developing a suite of conservation programs in 1991.
22 SMMPA's member services department is responsible for the development of conservation

1 programs and provides assistance to member utilities and implementation of those programs. In
 2 1995, SMMPA also developed a commercial industrial interruptible program.

3 The goal of SMMPA's conservation initiatives, known as *Managing Tomorrow's Energy*
 4 *Today*, is to defer or avoid developing new generation resources by encouraging SMMPA
 5 members' customers to adopt cost-effective high-efficiency alternatives. EGEAS integrates
 6 DSM opportunities on an equivalent basis with other resource alternatives, including DSM
 7 resources. Our 2003 resource plan identified a conservation goal of 250 GWh of energy savings
 8 and 22 MW of demand savings over the 2003-2018 timeframe.

9 SMMPA and its members have made significant investment in load management and
 10 conservation programs. The DSM program budget for SMMPA and its members is typically
 11 between \$3 million and \$3.5 million annually, which represents 2% of its members' aggregate
 12 gross operating revenue. SMMPA provides reimbursement to members for conservation
 13 program rebates made to their customers. This approach ensures the conservation investment
 14 will be made on the SMMPA system where technological opportunities exist and will not be
 15 constrained by local Conservation Improvement Program expenditures.

16 The total DSM savings achieved from SMMPA's members over the past several years is
 17 indicated in the following table:

Total DSM Savings		
Year	Demand Savings (MW)	Energy Savings (MWh)
2002	27	12,387
2003	28	13,416
2004	32	19,407

1 SMMPA continues to look for, evaluate and add new conservation initiatives. Such
 2 DSM efforts will be effective at reducing the size and/or delaying the timing of additional
 3 SMMPA resources. SMMPA's DSM resources are important in deferring the investment in new
 4 generation facilities, but they are not a replacement.

5 **VII. SELECTION OF BIG STONE UNIT II**

6 **Q: What are the results of SMMPA's resource planning activities?**

7 A: SMMPA's least cost plan identified a 53 MW need for a combined cycle plant in 2008
 8 followed by a 53MW baseload coal unit in 2013. Scenario analysis in the resource plan indicated
 9 that with high natural gas costs, the intermediate need would shift to baseload need. This is in
 10 fact what happened.

11 SMMPA's 47 MW proposed share of Big Stone Unit II is the least-cost available
 12 alternative resource for SMMPA. No other baseload plant project that has the characteristics of
 13 the Big Stone Unit II project are currently available to SMMPA.

14 **Q: Will Big Stone Unit II meet all of SMMPA's projected demand?**

15 A: No.

16 **Q: What resources will be available to meet SMMPA's future power and energy
 17 requirements if Big Stone Unit II is not constructed?**

18 A: The EGEAS modeling performed to evaluate the Big Stone Unit II examined (1) a 100
 19 MW share of a pulverized coal plant, (2) a 50 MW share of a pulverized coal plant, (3) a 50 MW
 20 combined cycle plant, and (4) a 50 MW combustion turbine. That modeling also included a 50
 21 MW purchased power agreement, wind power and landfill gas. All models fully accepted
 22 available DSM. SMMPA recently re-ran the modeling of the units listed above. These new runs

1 included updated fuel costs that were incorporated in November of 2005 in preparation for
2 SMMPA's 2006 budget. Natural gas costs were based upon the New York Mercantile Exchange
3 (NYMEX) adjusted for location, and coal costs reflected a 39% increase in SMMPA's coal costs
4 to be effective January 1, 2006. The 100 MW share of a pulverized coal plant was the least cost
5 alternative, followed by the 50 MW share of a pulverized coal plant, followed by the 50 MW gas
6 alternatives.

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

8 **A: Yes.**