

ORIGINAL

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

DOCKET NO. 990325-EI

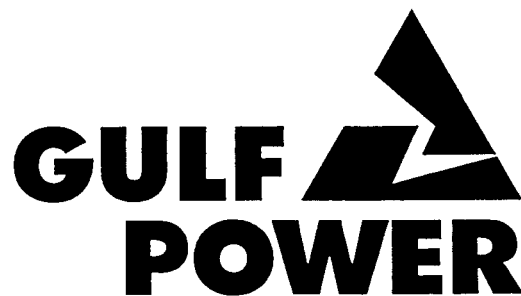
PETITION FOR NEED DETERMINATION

PREPARED DIRECT TESTIMONY

OF

ROBERT G. MOORE

APRIL 5, 1999



A **SOUTHERN COMPANY**

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FPSC-RECORDS/REPORTING

1 GULF POWER COMPANY

2 Before the Florida Public Service Commission
3 Direct Testimony of
4 Robert G. Moore
5 Docket No. 990325-EI
6 Date of Filing: April 5, 1999

7 Q. Please state your name, business address and
8 occupation.

9 A. My name is Robert G. Moore, and my business address is
10 One Energy Place, Pensacola, Florida 32520. I am Vice
11 President of Power Generation and Transmission for
12 Gulf Power Company.

13 Q. Please summarize your educational and professional
14 background.

15 A. I graduated from the University of Alabama in 1973 .
16 with a Bachelor of Science degree in Mechanical
17 Engineering. My career began as an engineer at
18 Alabama Power Company following graduation in 1973.

19 In April of 1978, I transferred to Mississippi
20 Power Company (MPC) as a plant engineer in Power
21 Generation at the Company's Daniel Electric Generating
22 Plant. I progressed through increasing levels of
23 responsibility to become Plant Manager in 1984. Then
24 in January of 1991, I transferred to MPC's Plant
25 Watson in Gulfport where I served as Plant Manager.

1 In March 1993, I was promoted and transferred to
2 Georgia Power Company as Plant Manager of Plant Bowen
3 located Northeast of Atlanta. As Plant Manager at
4 both Mississippi Power and Georgia Power Companies, I
5 was responsible for all aspects of power plant
6 operations and maintenance.

7 In July 1997, I was elected to my current
8 position as Gulf Power Company's Vice President of
9 Power Generation and Transmission. In this position,
10 I am responsible for the generation and transmission
11 of electricity and all wholesale bulk power marketing
12 functions. Other areas under my direction are
13 environmental services, system control, fuel
14 procurement, interchange contract administration, and
15 plant construction and engineering.

16
17 Q. What is the purpose of your testimony in this
18 proceeding?

19 A. The purpose of my testimony is to explain why the
20 Company believes construction of a combined cycle (CC)
21 unit at Gulf's Smith Plant (Smith Unit 3) is necessary
22 and to affirm the Company's commitment to this
23 project. I will also provide a brief description of
24 the unit and its estimated costs.

1 Q. Have you prepared an exhibit that contains information
2 to which you will refer in your testimony?

3 A. Yes. I have an exhibit consisting of 2 schedules to
4 which I will refer. This exhibit was prepared under
5 my supervision and direction. I am also sponsoring
6 Sections 9.1, 9.2, and 9.3 of the Need Study that was
7 filed in this docket.

8 Counsel: We ask that Mr. Moore's
9 Schedules 1 and 2 be marked as
10 Exhibit _____ (RGM-1).
11

12 Q. What is one of your primary responsibilities with
13 regard to Gulf's generating capacity resources?

14 A. I am the Chief Production Officer for Gulf Power
15 Company. In this role, I am responsible for making
16 sure that the Company has enough generating capacity
17 or purchased power resources to meet its customers'
18 electricity needs. The organization that I direct is
19 responsible for operating and maintaining Gulf's owned
20 capacity and procuring additional resources when it is
21 economic to do so. My organization is also
22 responsible for the planning of the bulk power
23 generation and transmission systems for Gulf Power
24 Company in concert with the other Southern operating
25 companies.

1 A number of employees at both Gulf Power and
2 Southern Company Services have worked for many months
3 on the evaluation process concerning additional
4 capacity. They have made various status reports on
5 this process during the last year to Gulf's executive
6 management and have, in my opinion, looked at the
7 options from every reasonable perspective. Gulf's
8 executives know that Smith Unit 3 is in the best
9 interests of our customers and are committed to the
10 development of this project.

11

12 Q. Would you provide a description of Smith Unit 3?

13 A. Smith Unit 3 will be what is commonly referred to as a
14 2-on-1 combined cycle unit, using the General Electric
15 "F" Class combustion turbine technology. The unit is
16 comprised of two combustion turbines (CT) whose
17 exhaust gases flow through two separate heat recovery
18 steam generators (HRSGs). On a combined basis, the
19 HRSGs will produce 1,800 psig steam in sufficient
20 quantities to power about 170 megawatts of steam
21 turbine/generator capacity. This provides an average
22 generating capability of 521 MW. As discussed later,
23 when power augmentation is used, the total capability
24 is raised to 540 MW.

1 Smith Unit 3 will be a highly efficient, state-
2 of-the-art combined cycle generating unit. Because
3 the new unit will be fueled by natural gas, the
4 environmental concerns associated with the project are
5 minimal. Smith Unit 3 is expected to provide the
6 customers of Gulf with many years of low cost, clean
7 energy.

8 Smith Unit 3 will have a firm supply of natural
9 gas that will come from a new pipeline installation to
10 the Smith Plant. Currently, the Company does not have
11 any plans to provide for a secondary fuel source for
12 this unit because of the expected firmness of the
13 natural gas supply. Since this new natural gas
14 pipeline is to be built and owned by someone other
15 than Gulf, the cost estimate does not include any
16 major gas pipeline costs, but does include connection
17 and metering costs. The pipeline costs are included
18 in the projected cost for natural gas that will be
19 used by the unit.

20 Smith Unit 3 will be located on the existing
21 generating site approximately 1,000 feet north of the
22 Smith Plant 230 KV substation. The unit's output will
23 reach the Company's transmission grid by means of less
24 than 1,000 feet of 230 KV bus. The existing

1 transmission system out of Smith Plant is sufficient
2 to handle the unit's output.

3 Smith Unit 3 will have an average annual output
4 of 521 megawatts at an efficiency of 6,741 Btu/KWH.
5 The unit will have the capability for power
6 augmentation by steam injection to generate up to 540
7 megawatts of peaking generation at a reduced
8 efficiency of 7,139 Btu/KWH. Schedule 1 contains the
9 operating characteristics of Smith Unit 3.

10

11 Q. What is the projected installed cost of Smith Unit 3?

12 A. The estimated installed costs for Smith Unit 3,
13 excluding AFUDC and any costs associated with the
14 construction of the natural gas pipeline is
15 \$187,252,000. This estimate is based on a combination
16 of actual vendor quotes and refined engineering cost
17 analyses and includes the costs necessary to comply
18 with all applicable environmental regulations. With
19 respect to most of the components that comprise the
20 project cost, this estimate can be considered
21 relatively firm ($\pm 10\%$). Schedule 2 contains a
22 breakdown of the cost estimate.

23

24 Q. Would you briefly explain the environmental
25 considerations?

1 A. Subsequent to filing the Petition for Need
2 Determination before the Commission, the Company will
3 file its Site Certification Application (SCA) with the
4 Florida Department of Environmental Protection under
5 the Florida Electrical Power Plant Siting Act (PPSA).
6 Smith Unit 3 will be operated in compliance with all
7 applicable federal and state environmental laws and
8 regulations. Two principal environmental issues to be
9 considered are air emissions and any thermal impacts
10 due to the discharge of cooling water from Unit 3.

11 As mentioned above, Smith Unit 3 will be fueled
12 by natural gas. Therefore, the only major air
13 emission issue is that of NO_x. Gulf is pursuing an
14 air emission strategy that will reduce NO_x emissions
15 from one of the existing Smith generating units,
16 leading to a net reduction in total NO_x emissions for
17 the entire plant even after Smith Unit 3 is
18 operational. However, in an abundance of
19 conservatism, the cost estimate used in the
20 evaluations of Smith Unit 3 included the capital and
21 O&M costs of a Selective Catalytic Reduction (SCR)
22 system if needed to control NO_x emissions beyond
23 levels achieved through this strategy.

24 Condenser cooling for Smith Unit 3 will be
25 accomplished by a closed-cycle cooling tower system,

1 which will minimize cooling water withdrawals and
2 discharge. Make-up water for the closed-cycle cooling
3 system will be withdrawn from the existing once-
4 through cooling water discharge canal that serves
5 existing Smith Units 1 and 2. Blow-down from the
6 cooling tower will be routed to the existing discharge
7 canal, downstream of the make-up structure. The blow-
8 down, which will be taken from the cold side of the
9 cooling tower, will result in a slight decrease in the
10 temperature of the cooling water of the discharge
11 canal compared to current conditions.

12 The Company believes that Smith Unit 3 will be
13 permitted for construction and operation under the
14 conditions and strategy that Gulf plans to propose in
15 its SCA. From an environmental standpoint, the
16 proposed facility will have net positive impacts.

17

18 Q. Why does Gulf Power Company need to construct
19 additional generating capacity in 2002?

20 A. Gulf Power Company's current power purchases expire at
21 the end of the year 2001. The Company's load and
22 energy forecast identifies that Gulf has a capacity
23 need of 427 MW beginning in the summer of 2002 in
24 order to achieve an adequate level of reserves. The

1 Company has done everything reasonable in order to
2 meet its customers' needs through 2001.

3 With the identified need beginning in 2002 in
4 mind, the Company has evaluated the options available,
5 performed a test of the market, and has determined
6 that the construction of Smith Unit 3 is the most
7 cost-effective resource choice for Gulf and its
8 customers. Over a 20-year period, Smith Unit 3 will
9 save the Company and its customers at least \$90
10 million compared to the next best alternative. I
11 believe that once the Company has presented its case,
12 this Commission will agree that the Company is making
13 the best choice.

14
15 Q. Please describe the role that Gulf's other witnesses
16 will play in this proceeding.

17 A. The testimony of Margaret D. Neyman and Michael J.
18 Marler will describe the load and energy forecasting
19 process employed by the Company. They will describe
20 how Gulf coordinates its forecasting activities with
21 the other Southern operating companies. They will
22 also present the supply-side and demand-side
23 considerations that ultimately lead to how much
24 customer demand the Company can expect from year to

1 year. This is one of the primary drivers for the
2 resource planning process.

3 The testimony of William F. Pope will describe
4 the Company's resource planning process and how it is
5 coordinated with the other Southern operating
6 companies. He will describe many of the steps the
7 Company goes through in order to develop its
8 individual piece of the Southern plan. Mr. Pope will
9 also describe the self-build option evaluations which
10 first indicated that a combined cycle unit at Gulf's
11 existing Smith Plant was the best internal
12 construction choice for Gulf.

13 The testimony of Maria Jeffers Burke will
14 describe the Company's Request for Proposal (RFP)
15 process and how the analyses of proposals were
16 conducted. Her testimony will show how the various
17 offers compared to the Company's self-build
18 alternative. Ms. Burke will explain the steps taken
19 that ultimately showed that Smith Unit 3 is the most
20 cost-effective option for Gulf's customers.

21 The testimony of M. W. Howell will bring together
22 all of the various facets of the decision-making
23 process that led the Company to settle on the
24 construction of Smith Unit 3. He will summarize the
25 process that led the Company to determine that Smith

1 Unit 3 is the most cost-effective choice for the
2 Company and its customers. Mr. Howell will also
3 provide this Commission the consequences of not
4 meeting the June 2002 in-service date.

5

6 Q. Does this conclude your testimony?

7 A. Yes.

GULF POWER COMPANY

Witness: Robert G. Moore

Exhibit _____ (RGM-1)

Schedule 1

SMITH UNIT 3 OPERATING CHARACTERISTICS

| | |
|--|----------------|
| Forced outage rate | 3.4% |
| Scheduled maintenance outage (Avg.) | 2 wks/yr |
| Equivalent availability | 92% |
| Expected average capacity factor | 62% |
| Fuel consumption (full load) | 3,900 MMBtu/hr |
| Annual fixed O & M (98\$) | \$2.84/KW-yr. |
| Variable O & M (98\$) | \$1.89/mWh |

Florida Public Service Commission
Docket No. 990325-EI
GULF POWER COMPANY
Witness: Robert G. Moore
Exhibit _____ (RGM-1)
Schedule 2

INSTALLED COST ESTIMATE FOR SMITH UNIT 3

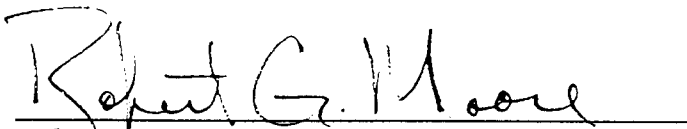
| <u>DESCRIPTION:</u> | <u>AMOUNT (2002\$)</u> |
|--------------------------------------|------------------------|
| Indirects | \$ 23,661,966 |
| Site, General | 2,701,846 |
| Steam Generator Area | 36,741,570 |
| Turbine & Generator Area | 91,143,505 |
| Fuel Facilities (metering only) | 856,111 |
| Plant Water Systems | 13,443,351 |
| Electrical Distribution & Switchyard | 12,177,183 |
| Plant Instrumentation & Controls | 2,591,303 |
| Other | <u>3,935,190</u> |
| TOTAL | \$187,252,025 |

AFFIDAVIT

STATE OF FLORIDA)
)
COUNTY OF ESCAMBIA)

Docket No. 990325-EI

Before me the undersigned authority, personally appeared Robert G. Moore, who being first duly sworn, deposes, and says that he is the Vice President of Power Generation and Transmission of Gulf Power Company, a Maine corporation, that the foregoing is true and correct to the best of his knowledge, information, and belief. He is personally known to me.




Robert G. Moore
Vice President - Power Generation
and Transmission

Sworn to and subscribed before me this 2nd day
of April, 1999.



Notary Public, State of Florida at Large

 Jackie L Whipple
My Commission CC662984
Expires August 23, 2001