BEFORE THE
FLORIDA PUBLIC SERVICE COMMISSION

DOCKET NO. 001748-EC

In the Matter of

PETITION FOR DETERMINATION OF NEED FOR THE OSPREY ENERGY CENTER IN POLK COUNTY BY SEMINOLE ELECTRIC COOPERATIVE AND CALPINE CONSTRUCTION FINANCE COMPANY, L.P.

_____/

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VOLUME 1

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PROCEEDINGS:	**HEARING**
BEFORE:	**CHAIRMAN E. LEON JACOBS, JR.** **COMMISSIONER J. TERRY DEASON** **COMMISSIONER LILA A. JABER** **COMMISSIONER BRAULIO L. BAEZ** **COMMISSIONER MICHAEL A. PALECKI**
DATE:	**Monday, February 12, 2001**
TIME:	**Commenced at 9:35 a.m.** **Concluded at 10:40 a.m.**
PLACE:	**Betty Easley Conference Center** **Room 148** **4075 Esplanade Way** **Tallahassee, Florida**
REPORTED BY:	**TRICIA DeMARTE** **Official FPSC Reporter**

APPEARANCES:

ROBERT SCHEFFEL WRIGHT, JOHN T. LaVIA, III, and DIANE K. KIESLING, Landers & Parsons, 310 West College Avenue, Tallahassee, Florida 32302, appearing on behalf of Calpine Construction Finance Company, L.P.

JOSEPH A. McGLOTHLIN, McWhirter, Reeves, McGlothlin, Davidson, Dekker, Kaufman, Arnold & Steen, 117 South Gadsden Street, Tallahassee, Florida 32301, appearing on behalf of Seminole Electric Cooperative, Inc.

RACHAEL N. ISAAC and ROBERT V. ELIAS, FPSC Division of Legal Service, 2540 Shumard Oak Boulevard, Tallahassee, Florida 32399-0850, appearing on behalf of the Commission Staff.

ALSO PRESENT:

JUDY HARLOW, FPSC, Division of Safety & Electric Reliability
HAROLD McLEAN, FPSC, Commissioner's Suite

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CHAIRMAN JACOBS: Call the hearing to order. Counsel, read the notice.

MS. ISAAC: Pursuant to notice issued December 11th, 2000, a notice published in the Florida Administrative Weekly on December 22nd, 2000, this time and place have been noticed for hearing in Docket Number 001748-EC, petition for determination of need for power plant in Polk County by Seminole Electric and Calpine. Also, notice was published in The Ledger in Lakeland, Polk County, Florida on December 17th, 2000, pursuant to the requirements of Section 403.519, Florida Statutes.

The purpose of this hearing will be for the Commission to take final action to determine the need pursuant to Sections 403.501 through 519, Florida Statues, for the construction of a power plant and related facilities in Polk County. This proceeding shall allow Seminole and Calpine to present evidence and testimony in support of its petition for a determination of need for its proposed plant and related facilities in Polk County and to permit members of the public who are not parties to the need determination proceeding the opportunity to present testimony concerning this matter and for such other purposes as the Commission may deem appropriate.

CHAIRMAN JACOBS: Take appearances. Which end

should we start? All right.

MR. McGLOTHLIN: Joseph Allan McGlothlin, appearing for Seminole Electric Cooperative, Inc.

MR. WRIGHT: Robert Scheffel Wright, 310 West College Avenue, Tallahassee, Florida 32301, appearing on behalf of Calpine Construction Finance Company, L.P.

MR. LaVIA: John T. LaVia from Landers & Parsons, appearing on behalf of Calpine.

MS. KIESLING: Diane Kiesling, also Landers & Parsons, for Calpine.

MS. ISAAC: Rachael Isaac, appearing on behalf of Staff.

MR. ELIAS: Bob Elias, appearing on behalf of the Commission Staff.

MR. McLEAN: And lastly, Commissioners, Harold McLean, 2400 Shumard Oak Boulevard, Tallahassee, Florida 32399, appearing on behalf of the Commissioners.

CHAIRMAN JACOBS: Very well. Staff, preliminary matters?

MS. ISAAC: None that I know of.

CHAIRMAN JACOBS: Very well. As I understand it, there has been substantial agreement, and we're prepared to enter witnesses' testimony into the record. There's agreement on that? And there was one witness that we were going to put on the stand; correct?

MS. ISAAC: That's correct, Mr. Woodbury.

CHAIRMAN JACOBS: Okay. Would you like to do Mr. Woodbury first? And then we'll handle all the other -- that sounds like a reasonable --

MS. ISAAC: Sure. Let's do Mr. Woodbury, and then if you need to, we can call Mr. Eves.

CHAIRMAN JACOBS: Very well.

MR. McGLOTHLIN: Seminole calls Timothy Woodbury.

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TIMOTHY S. WOODBURY

was called as a witness on behalf of Seminole Electric Cooperative, Inc., and, having been duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. McGLOTHLIN:

Q Please state your full name and business address.

A Timothy S. Woodbury. My business address is 16313 North Dale Mabry Highway, Tampa, Florida.

Q By whom are you employed, Mr. Woodbury?

A Seminole Electric Cooperative.

Q What is your position with Seminole?

A I'm vice president of strategic services.

Q In that capacity, Mr. Woodbury, did you prepare

and submit prefiled direct testimony in support of the joint application in this proceeding?

A Yes, I did.

Q Do you have it before you?

A Yes, I do.

Q Do you have any changes or corrections to the prefiled testimony?

A No, I do not.

Q We're referring to the revised version of that testimony?

A That's correct.

Q Do you adopt the testimony contained in the revised prefiled direct testimony as your testimony here today?

A I do.

MR. McGLOTHLIN: I request that the prefiled direct testimony, revised, of Mr. Woodbury be inserted as though read at this point.

CHAIRMAN JACOBS: Without objection, show the testimony of Mr. Woodbury entered into the record.

BY MR. McGLOTHLIN:

Q And did you also prepare some exhibits to accompany your testimony?

A Yes, I did.

Q Would you identify those quickly, please.

A Two exhibits: TSW-1 is a map showing the areas in which our Member systems serve throughout Peninsular Florida, and TSW-2 is revised. It's a listing of Seminole's year-round purchases and seasonal purchases under contracts with others.

MR. McGLOTHLIN: I request that a number be assigned to the Woodbury exhibits for identification.

CHAIRMAN JACOBS: We'll assign as a composite Exhibit TSW-1 and TSW-2 as Exhibit Number 1.

(Exhibit 1 marked for identification.)

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

DIRECT TESTIMONY AND EXHIBITS OF TIMOTHY S. WOODBURY

ON BEHALF OF SEMINOLE ELECTRIC COOPERATIVE, INC.

DOCKET NO. 001748-EC

JANUARY , 2001

Q. Please state your name and business address.

A. My name is Timothy S. Woodbury; my business address is 16313 North Dale Mabry Highway, Tampa, Florida 33618.

I. QUALIFICATIONS

Q. What is your current position?

A. I am Vice President of Strategic Services at Seminole Electric Cooperative, Inc. ("Seminole"). I have held the title of Vice President at Seminole since December 14, 1995. My responsibilities include, among other things, managerial oversight for activities related to rate design and development, strategic planning, power marketing, and the acquisition and administration of purchased power and transmission service contracts. I was the principal negotiator for Seminole in the development of the definitive Power Purchase Agreement, or PPA, between Calpine Energy Services, L.P. ("Calpine") and Seminole regarding the purchase and sale of capacity and energy from Calpine's Osprey Energy Center ("Osprey Project").

Q. Please briefly describe your professional and academic background.

A. I have over twenty-three years of experience in the electric utility business. Prior to my employment at Seminole in August 1979, I was employed as an economist by Duke Power Company, and I worked in areas of rates and load forecasting. I have

a Bachelor of Science in Financial Management and a Master of Arts in Economics from Clemson University.

Q. Have you previously testified on behalf of Seminole before regulatory agencies?

A. Yes. I have provided written testimony and testified on behalf of Seminole before the Federal Energy Regulatory Commission ("FERC") and the Florida Public Service Commission ("FPSC") in a number of different regulatory proceedings concerning a variety of issues relating to my areas of responsibility at Seminole.

II. PURPOSE OF TESTIMONY

Q. What is the purpose of your testimony?

A. My testimony has several purposes. First, I will describe Seminole. Second, I will provide an overview of the planning analyses that Seminole employed to identify its need for capacity in the 2004 time frame and the competitive process it used to determine that Calpine's proposal is the best alternative available to satisfy that need. I will introduce the witnesses for Seminole who conducted those analyses and who will support Seminole's conclusions. I will explain how the purchase of firm capacity and energy from Calpine will fit into Seminole's overall system. Finally, I will generally describe the advantages and benefits to Seminole of the terms and conditions contained in the PPA between Calpine and Seminole.

Q. Are you sponsoring any exhibits in this case?

A. Yes. I have attached to my testimony Exhibits Nos. ___ (TSW-1)-(TSW-2). I am also sponsoring Sections A, B, and C (6) of Volume I of the Amended Exhibits to the Amended Joint Petition as well as Appendix I-C, the Power Purchase Agreement.

III. BACKGROUND

Q. Please provide a brief overview of Seminole and its Members.

A. Seminole is a non-profit Generation and Transmission Cooperative organized under Chapter 425 of the Florida Statutes. Each of Seminole's Members is a distribution cooperative serving end users in Florida. Seminole was incorporated in 1948 to provide unified representation for its Members in wholesale purchased power negotiations.

Q. Which distribution cooperatives in Florida are Members of Seminole?

A. Seminole's Members are Central Florida Electric Cooperative ("Central"), Clay Electric Cooperative ("Clay"), Glades Electric Cooperative ("Glades"), Lee County Electric Cooperative ("LCEC"), Peace River Electric Cooperative ("Peace River"), Sumter Electric Cooperative ("Sumter"), Suwannee Valley Electric Cooperative ("Suwannee"), Talquin Electric Cooperative ("Talquin"), Tri-County Electric Cooperative ("Tri-County"), and Withlacoochee River Electric Cooperative ("Withlacoochee"). The Members serve over 680,000 end use consumers in 45 counties throughout the state. The map attached as Exhibit No. ___ (TSW-1) shows the location in the state of the areas served by Seminole's Members.

Q. Please describe Seminole's activities on behalf of its Members.

A. Seminole's activities were limited until 1974 when, following the 1973 oil embargo, its Board of Trustees determined that it should develop independent power supplies for the Members. In 1975, each Member entered into a long term contract with Seminole for the purchase of wholesale power ("Wholesale Power Contract" or "Contract"). The Wholesale Power Contracts require each Member to purchase from Seminole all of its power requirements for distribution within the State of Florida not otherwise supplied under pre-existing contracts.

Q. Are there currently any applicable pre-existing contracts?

A. Yes. Four of Seminole's Members have pre-existing contracts with the Southeastern Power Administration ("SEPA") for a combined 26 MW of capacity. The capacity supplied from SEPA to these Members represents less than 1% of Seminole's Members' total capacity requirements.

Q. What is the term of the Wholesale Power Contracts between Seminole and its Members?

A. The Wholesale Power Contracts have an initial term of forty-five (45) years (i.e., through May 22, 2020). Thereafter, each Contract may be terminated upon three years' written notice by the party desiring termination.

Q. Please describe Seminole's current portfolio of power supply resources.

A. Seminole constructed and operates two nominally rated 650 MW coal-fired generating units ("Seminole Plant") in Putnam County, Florida. These units supply nearly 75% of the Members' energy requirements. The first of the two units began commercial operation on January 31, 1984; Unit No. 2 began commercial operation on December 31, 1984. Seminole also owns a 1.6994% (approximately 15 MW) undivided interest in Crystal River Unit No. 3 ("CR3"), an 890 MW nuclear power plant operated by Florida Power Corporation ("FPC"). The Seminole Plant is connected to the Florida bulk power grid at three locations through five 230 kilovolt ("kV") circuits and associated facilities. From these interconnections, Seminole transmits the output of the Seminole Plant to the Member delivery points and to other purchasers through the transmission systems of FPC and Florida Power & Light Company ("FPL"). The Seminole Plant is also tied directly to approximately 300 MW of Member load through Seminole's own 230 kV transmission facilities.

Seminole also has a contract with Siemens-Westinghouse and Overland Contracting to construct a new combined cycle facility ("Payne Creek") to be located

in Hardee County. Payne Creek, a 500 MW nominally rated facility, has an expected in-service date of January 2002.

In addition, Seminole has numerous short and intermediate term purchased power contracts with other entities in the state which provide for intermediate and peaking needs as well as reserves. Exhibit No. _____ (TSW-2) provides a summary of these purchased power resources.

Q. Please describe Seminole's electrical interconnections and transmission facilities.

A. Seminole owns 52 miles of 230 kV double circuit transmission line from the Seminole Plant to the Silver Springs North Switching Station, eight miles of 230 kV double circuit line from the Seminole Plant to FPL's Rice Substation, and nine miles of 230 kV double circuit line from the Hardee Power Station ("HPS") to FPC's Vandolah Substation. Seminole also owns 78 miles of 230 kV single circuit transmission line from the HPS to Lee County Electric Cooperative's Lee Substation (which is also an interconnection with FPL), and 63 miles of 230 kV single circuit line from the Seminole Plant to an interconnection with Jacksonville Electric Authority at the Clay-Duval County line. Seminole jointly owns, with FPC, two tie lines from Silver Springs North to FPC's Silver Springs Substation. Seminole also owns fourteen 69 kV transmission lines, which total 143.2 miles in length.

Q. Is Seminole represented on the Florida Reliability Coordinating Council?

A. Yes, Seminole participates actively within the Florida Reliability Coordinating Council.

Q. Please elaborate on the relationship between Seminole and its Members.

A. Seminole serves the electric service needs of its Members, all of which are engaged in the sale of electricity to end use customers who are, in turn, the Members'

respective owners/members. Therefore, like Seminole, each Member that Seminole serves is owned by and is answerable to its owners/customers. Seminole's governing Board of Trustees consists of representatives from the boards of the Members as well as each Member's general manager. Seminole's Board of Trustees consists of two voting trustees and one alternate from each of the ten Members. In short, the cooperative form of business is very different from that of an investor-owned utility. Investor-owned utilities must balance the often competing interests of shareholder and customer. In the case of cooperatives such as Seminole, customers' and owners' interests are one and the same.

Q. Please elaborate on the areas served by Seminole's Members.

A. Seminole's Members provide service to approximately half of peninsular Florida's land area. As a result, Seminole's overall service area experiences a variety of geographic and weather conditions that provide for a diverse mix of economic activity and demographic characteristics. All end use consumer classes have shown strong growth. Seminole's overall growth rate has consistently exceeded the growth experienced by most, if not all, of the other utilities in Florida. Over 90% of the combined end use consumers served by Seminole's Members are residential. This class of consumers accounts for over 70% of the Members' total energy requirements.

IV. SEMINOLE'S PLANNING PROCESS

Q. Generally describe Seminole's planning process.

A. Our planning process involves an examination of current data and of assumptions about future conditions, coupled with an analysis of how potential additions would mesh with the existing system under those future conditions. Two important inputs to the process are the assumptions about system load growth and future fuel prices.

In this proceeding, Bob Woodall will testify concerning the fuel price forecast that was employed in the analysis that led Seminole to identify a need for capacity in 2004. Bill Lawton will address the methodology that Seminole and its Members used to project future peak demand and energy requirements, and will report the results of the load growth study.

Given assumptions about load growth, energy consumption, fuel prices, and the known capabilities of current resources, it is possible to model or simulate the system over time, and to measure both the reliability of the system and the cost of providing service associated with alternative power supply options. In this way, Seminole determines when load growth, the expiration of contracts, plant retirements, and/or other changes will overcome the ability of the system to meet Members' needs with an acceptable level of reliability, and Seminole identifies the appropriate type, size, and timing of the next capacity addition. Garl Zimmerman will describe in his testimony the analysis that Seminole made of the capabilities of existing resources to meet future requirements. He will quantify the need that the analysis identified. Finally, he will describe in detail the Request for Proposals ("RFP") that Seminole issued, the responses obtained, and the evaluation of responses that led Seminole to conclude that the Calpine Osprey Project best meets Seminole's needs.

Q. **Earlier you identified the power purchase agreements that comprise a portion of Seminole's existing supply portfolio. When Seminole gauges the capabilities of existing resources during its planning exercises, do any of these contracts present special considerations?**

A. Yes. Unlike the more typical unit power or system power transactions, which provide the purchaser with blocks of available power, the partial requirements service

that Seminole receives from FPC and our contractual arrangement with TECO Power Services for the purchase of capacity from the Hardee Power Station both have some unique features. Those features were designed to, and do, serve valuable purposes specific to the needs of Seminole's system. However, because they are different from the typical power supply arrangement, they also add a degree of complexity to our planning efforts.

Q. Please provide an overview of the partial requirements service that Seminole receives from FPC and explain how it affects the planning of Seminole's system.

A. In 1983, Seminole executed a long term contract covering partial requirements ("PR") and transmission service with FPC ("Agreement"). The Agreement has an initial term through 2013. The Agreement obligates Seminole to supply the Members' aggregate load in FPC's control area, up to a specified MW commitment level ("Capacity Commitment"), using resources it owns or otherwise acquires. FPC, in turn, is obligated to supply Seminole's load requirements in excess of this commitment level from its system resources under PR rates contained in the Agreement. Said differently, in contrast to the more typical "block of power" arrangement, under the PR contract FPC provides a *load following* service. Consequently, when planning the system, Seminole does not plan to meet the peak load requirements of Members located in FPC's control area. Under the Agreement, Seminole has the ability, with three years' notice, to increase the Capacity Commitment by 150 MW; by giving five years' notice, increase the commitment level by 470 MW; and, by giving seven years' notice, increase the Capacity Commitment in any future calendar year without limitation. Accordingly, in its planning, Seminole must analyze the most cost-effective manner to serve its Capacity Commitment in FPC's control area. It must also consider the most cost-effective

Capacity Commitment level by comparing the differences between the cost of continuing PR purchases and the cost of other alternative power supply resources, either owned or purchased.

Q. Please describe the principal features of Seminole's contractual arrangement with TECO Power Services.

A. Under this contract Seminole has "first call" on 295 MW of capacity from the Hardee Power Station when Seminole experiences an outage (partial or full) of one of its coal-fired base load units, Seminole 1 and Seminole 2, or of its Crystal River 3 resource.

Q. Why is this feature novel for planning purposes?

A. Under a typical purchase of system or unit power, the availability of the purchased capacity is limited only by the extent to which the source of the power is affected by outages on the seller's applicable resource(s). In the case of the Hardee Power Station purchase, the limitation is different. With regard to serving its Members' needs, the Hardee Power Station capacity is available to Seminole as a matter of contractual right, on a first call basis, when *Seminole* experiences a planned or forced outage or derating of its Seminole Plant or Crystal River 3. In other words, the contract with TECO Power Services fulfills a specific need, but there are limitations on the use of the resource. The constraint is, of course, well understood, but it is not as easily expressed or quantified in certain steps of the planning analysis. In his testimony, Garl Zimmerman will elaborate on how Seminole considers these more unusual contractual features in the planning process.

V. SELECTION PROCESS

Q. Does Seminole typically employ a competitive procurement process?

A. Yes. Although Seminole is not subject to this Commission's RFP rule, for years Seminole has solicited and evaluated proposals from others prior to selecting a specific capacity addition. Seminole views such a competitive process as the best way to secure the most economical source of power and also to reduce risk. In fact, to my knowledge, the RFP that Seminole issued in 1988, prior to entering a contract with TECO Power Services, was the first of its kind in Florida. Seminole has been committed to a competitive power supply procurement process since that time, and it has served Seminole's Members' interests well.

VI. OVERVIEW OF THE POWER PURCHASE AGREEMENT

Q. What were Seminole's objectives in negotiating the PPA with Calpine?

A. Very simply, our objective was to find a reliable source of capacity and energy that provided economic and strategic advantages relative to other available options.

Q. Please describe the PPA.

A. Both parties to the PPA regard the commercial details as confidential and proprietary. (The complete PPA has been submitted to the Commission under a claim of confidentiality.) However, a general description will convey the manner in which Seminole achieved its objectives. The PPA contains specific pricing provisions. The terms require Calpine to furnish the firm capacity to Seminole at very high levels of availability. Energy will be delivered to Seminole when called upon by Seminole subject to specific scheduling provisions. The PPA provides for the purchase and sale of 350 MW of firm capacity and associated energy during the period 2004-2020, subject to periodic contractual "reopeners."

Q. Given these reopener provisions, what is the minimum term over which the agreement might remain in effect?

A. The minimum term is five years from the later of the commercial operation date of the Osprey unit, and June 1, 2004.

Q. Does Seminole have options to acquire greater amounts of capacity than the initially specified 350 MW amount?

A. Yes. In addition to the 350 MW of firm capacity, Seminole has the right to acquire optional firm capacity in any amount, up to the full remaining generating capability of Calpine's Osprey unit, to the extent Calpine has not sold such capacity on a firm basis to another party at the time Seminole exercises its option. Seminole must give notice of its decision to exercise its option to purchase such additional capacity 6 months ahead of time. The optional firm capacity designated in this notice by Seminole would then be secured for Seminole in twelve month increments.

VII. STRATEGIC CONSIDERATIONS

Q. Please identify the strategic advantages to which you referred earlier.

A. First, by contracting with Calpine, Seminole is able to secure 350 MW of needed firm capacity and associated energy at a cost that reflects the economies of scale associated with a new 500 MW class, efficient combined cycle facility. Second, the "reopener" provision enables Seminole to renegotiate, and if such negotiations are, in Seminole's view, unsuccessful, terminate the PPA after any 60-month period--a valuable advantage over any self-build option. By acquiring 350 MW, Seminole will gain the flexibility of either terminating (with advance notice of three years) a more expensive purchase from FPC, or of maintaining (perhaps at a reduced level) the purchase from FPC as an additional contribution to reliability and a hedge against unforeseen contingencies. The ability to acquire "optional firm capacity" further enhances Seminole's flexibility to meet changes in circumstances over time. Taking into account the committed capacity and the reserved firm capacity option provision,

Seminole has negotiated the ability to avail itself of the full capacity of the Osprey Project, subject only to the possibility of firm commitments to others made prior to Seminole's exercise of its option. Under the terms to which Calpine and Seminole have agreed, Seminole may elect to purchase energy from the Osprey project and resell it in the wholesale market. This ability provides Seminole with a potential opportunity to reduce its Members' revenue requirements by realizing margins on off-system sales during periods when more economical energy is available to Seminole or when its Members' requirements do not support the full utilization of its rights to the Osprey unit. Finally, unlike some of the other options--including Seminole's self-build option--Calpine intends to bring the Osprey unit on line in advance of the time when Seminole will require the capacity to maintain standards of reliability. For that reason, the arrangements with Calpine reduce the risk that the selected capacity may not be in place in the time frame required by Seminole.

Q. Please summarize your direct testimony.

A. Seminole's system is unique in Florida. The arrangements between Calpine and Seminole are designed to meet the needs of that system well. In addition to being the lowest cost alternative available to Seminole, Calpine and Seminole have agreed to non-price terms and conditions that provide valuable strategic advantages to Seminole.

Q. Does this conclude your direct testimony?

A. Yes.

BY MR. McGLOTHLIN:

Q Mr. Woodbury, have you prepared a summary?

A Yes, I have.

Q Would you summarize your testimony for the Commissioners, please.

A Yes. Seminole Electric Cooperative is a nonprofit generation transmission cooperative. Seminole serves the electric needs of its ten Member cooperatives who have retail member-consumers located throughout roughly one half of the land area of Peninsular Florida.

All the Members are represented on Seminole's Board of Trustees. In addition, all the Members are engaged in the sale of electricity to end use consumers who are also their owner/members. Therefore, just as Seminole is owned by and answerable to its Members, each Member that Seminole serves is owned by and answerable to its retail member-consumers.

Unlike conventional utilities, in Seminole's case, the consumers' interest and the owners' interest are one in the same. Seminole supplies its Members' needs with a portfolio of owned and purchased resources. Seminole's units include two 600-megawatt coal-fired Seminole units and 15-megawatt undivided interest in Crystal River 3. Presently, Seminole is constructing a new 500-megawatt unit combined cycle facility, Payne

Creek, of which the Commission gave us a need determination in 1994.

Over time, Seminole has negotiated with numerous wholesale power suppliers; some of which we've got some arrangements which contain unique features. Seminole has a first call on capacity from the TECO Power Services' Hardee Unit whenever one of Seminole's existing units experiences a planned or forced deration or outage. Seminole has a partial requirements, or I'll refer to it sometimes as a PR contract, with Florida Power Corporation that enables Seminole to specify the capacity it will serve in FPC's transmission control area, and we purchase load following service from FPC for any loads above this specified capacity level.

This load following aspect of the partial requirements service is important to Seminole's planning process since FPC has a contractual responsibility to provide the reserves needed to respond to load growth and load volatility caused by unusual weather patterns for all of Seminole's Member load covered under that agreement.

To my knowledge, the RFP that Seminole issued in 1998, prior to entering into the contract with TECO Power Services, was the first of its kind in Florida. Seminole views the competitive bidding process as the best way to secure the most economical source of power and also to

reduce risk, and has used this process since 1988.

The purchased power agreement that Seminole negotiated with Calpine contains valuable features. Calpine's commitment to Seminole consists of 350 megawatts of firm capacity plus option rights that Seminole may exercise to obtain up to the full amount of capacity for which the unit is capable on a firm basis subject only to notice requirements in any other prior sales.

The contractual terms and conditions establishing Seminole's rights to call on the optional capacity and energy are fully in place. The optional capacity is available to Seminole as of the Osprey Unit's commercial in-service date. The option feature gives Seminole considerable flexibility with which to meet its future needs which is important in this environment of uncertainty and rapid change.

The PPA gives us the advantage of favorable pricing possible only with the economies of scale associated with a 500-megawatt class unit. The agreement contains periodic reopener provisions that will enable Seminole to ensure that the terms and conditions remain favorable in the then existing market.

Further, Calpine's plan to bring the Osprey Unit on-line in 2003 reduces the risk that Seminole might be unable to supply capacity its Members in the time frame it

is needed relative to other alternatives. It also provides Seminole with the added reliability protection of having additional capacity available should market conditions change.

We respectfully request that the Commission approve our joint application for determination of need. And this concludes my summary.

MR. McGLOTHLIN: Mr. Woodbury is available for questions.

MR. WRIGHT: No questions, Mr. Chairman.

CHAIRMAN JACOBS: Staff?

MS. ISAAC: No questions.

CHAIRMAN JACOBS: My questions were probably the reason that they had you come in, Mr. Woodbury. You indicated that in your analysis you look at present load forecast and you look at -- particularly you look at fuel to provide these -- in this analysis.

My concern goes to the idea that in determining on this build option whether or not there are appropriate demand-side measures that would be appropriate, and what we're seeing now pretty much from all the applications that come in is that there are no conservation measures and very few demand-side measures that will be cost-effective. Is that consistent with your analysis?

THE WITNESS: No, sir. I think we've got, in my

view, a significant amount of demand-side management across our system. And our Member systems currently have demand-side management programs that control -- if you include also the interruptable feature -- interruptible service that we've got arrangements with them for interruptable service as well as demand-side management in excess of 130 megawatts of loads under control at the time of peak.

We have designed our rate schedules with our Member systems to send the proper signal to the Members as to what the value is of serving -- of saving a megawatt through load management. And we think it provides the proper incentives for the Members to evaluate what cost-effective load management should be in place on the system. So I think on a go-forward basis, we have established our rates to give the proper incentives to the Members to engage in DSM activities.

CHAIRMAN JACOBS: Could you walk me through -- I'm interested because -- your relationship with your Members here is what is of interest to me. And the idea that you can convey to those Members and then those Members convey to their retail users these signals, that's really important, I think.

THE WITNESS: Yes.

CHAIRMAN JACOBS: Could you kind of walk me

through that process and how it works?

THE WITNESS: Yes. One other thing I'd like to point out to you, Commissioner Jacobs, is that in our RFP that we issued one of the things that we did was, we opened the bidding up to demand-side management alternatives. We didn't just look for supply-side alternatives. So we asked the marketplace to come to us with either supply-side options or demand-side options. We didn't get demand-side options bid to us, but that doesn't mean we're not doing demand-side management within our system.

Now, to your question on how we set up our rates. Essentially what we do in pricing our wholesale power to our Member systems is to send them a signal by charging them a demand charge that's tied to our coincident peak demand as a system, which is what Seminole plans for with regard to future peaking resources or intermediate sources that it's going to have. We look at what our monthly peaks are during the peak's peak months. The off-peak months don't really have a bearing on our system.

So we send them a signal as to what the incremental cost of capacity is on the Seminole system during those peak months. And in our case, the demand chart that we have is roughly $8.50 a kW month during the

eight peak months of the year, summer and winter.

If you were to annualize that on a 12-month basis, that would be roughly, you know, 8.50 times 8 divided by 12 would give you something in the neighborhood of $5.60 a kW month, which we think is pretty representative of an annualized cost for a combined cycle unit/peaking unit. So the Member systems, in terms of implementing load management at the retail level, look at that signal, and they say, I've got to do two things to reduce a megawatt at the time of Seminole's peak. I have to put in some load management equipment that costs me money, and I have to give a retail customer an incentive to want to be inconvenienced.

If the sum of those two things, those costs to the Member, or how do they compare to the rate signal that they're getting from Seminole, suggests that it's a good decision to do those two things, then they'll do them. And if they don't, they won't. So that's what we view is cost-effective load management. It does not pay the Member systems. It's not a good economic judgment for society as a whole for somebody to spend $9 a kW month to avoid putting in a $5 per kW month unit.

CHAIRMAN JACOBS: Okay. Very well. Now, turning to conservation measures. What we've seen in other applications -- recent applications is that because

of what has been the price of gas going into the gas units, there have been few, if any, conservation measures that have proven to be cost-effective and, therefore, to offset the new increment. Is that consistent with your analysis?

THE WITNESS: Well, in this particular case, we're looking for a combined cycle unit to meet an intermediate portion of our load curve. And our belief is, is that even if you were to take our low load forecast, which is roughly 10 percent below our base on the energy side, just knock off 10 percent of the energy requirements, that we would still have the need for this combined cycle unit on our system. So even additional amounts of energy conservation, per se, would not alter our decision relative to the need for this plant.

CHAIRMAN JACOBS: And then one final question. Do you do an analysis that would indicate at what -- and let me step back for a moment. You are probably aware that the gas market has been fairly volatile --

THE WITNESS: Yes.

CHAIRMAN JACOBS: -- and the prices have been moving around.

And, therefore, at any given point when you do your analysis, would -- the price of gas at that time could have a very immediate impact on what conservation

measures are proven to be cost-effective. Do you do an analysis which pinpoints particular conservation measures at particular price points of gas?

In other words, at what price of gas would certain measures be cost-effective, and therefore, you would want to look again at whether or not you should project out further for avoiding the unit?

THE WITNESS: Well, in this particular case, Commissioner, the alternatives that we were weighing Calpine against were all gas-fired, combined cycle units. So it's an unfortunate fact of life that we are in what we view is a relatively short-term spike in the gas market, but we don't want to overreact as a result of that short-term spike.

The alternatives that we had were, we did not have an alternative to go out and build a coal-fired unit. We need the capacity. We need it by the summer of 2004. We like the option of being able to call on it earlier by having Calpine get the unit in commercial operation as soon as possible. But we don't think that as a practical matter looking at the sensitivities would have any bearing on our need for the capacity because there were really no other alternatives at this juncture.

CHAIRMAN JACOBS: Thank you. That's all the questions I have. Commissioners, any questions?

COMMISSIONER DEASON: Just a couple of quick questions. What would be Seminole's reserve margin with the unit and without the unit in 2004?

THE WITNESS: Mr. Zimmerman was our witness here, but I think I asked him to give me that information.

COMMISSIONER DEASON: 2004 is the first year of full operation; is that correct?

THE WITNESS: Yes. With Calpine and including the Florida Power Corporation 150-megawatt intermediate purchase that we have referred to in Mr. Zimmerman's testimony, I believe in 2004, subject to Mr. Zimmerman confirming I'm correct, the reserve margin would be 25 percent in that first year.

COMMISSIONER DEASON: And is that based upon summer peak?

THE WITNESS: Excuse me?

COMMISSIONER DEASON: Is that based upon summer peak?

THE WITNESS: That would be based on the summer need, I believe, as well, Commissioner. Again, I'd like to have Mr. Zimmerman confirm that.

COMMISSIONER DEASON: And what would the reserve margin be without the unit in 2004?

THE WITNESS: With no addition at all, I believe the number would be 11.6 percent.

COMMISSIONER DEASON: And in your process of evaluating the proposals that you received, I'm sure one of the things you looked at was the reliability of the source of fuel. And what review did you undertake, and how did you conclude that this project's fuel source was going to be reliable?

THE WITNESS: Well, that was clearly part of the analysis, Commissioner. And we believe as a package -- the package deal that we negotiated with Calpine does provide us with a reliable source of fuel. Without getting into many of the specifics of the arrangement, we believe that gas will be able to be delivered to the plant. And we're confident that gas will -- we're committed to gas. We've got the Payne Creek Unit as well in Hardee County. So we believe that gas deliveries in Florida will be -- are not a high risk.

COMMISSIONER DEASON: But this project's primary reliance is upon the Gulfstream project; is that correct?

THE WITNESS: I think the way I'd characterize it, Commissioner, is, is that it's not dependent on the Gulfstream Project.

COMMISSIONER DEASON: If that project comes about, then that can be a source, but it's not the only source.

THE WITNESS: That would be a fair

characterization.

COMMISSIONER DEASON: Okay.

CHAIRMAN JACOBS: Any questions? All right. Thank you.

MR. McGLOTHLIN: May I have just one on redirect?

CHAIRMAN JACOBS: I'm sorry. Go ahead.

REDIRECT EXAMINATION

BY MR. McGLOTHLIN:

Q Mr. Woodbury, you had referred to the rate design that Seminole established would send price signals to its Members. Has Seminole undertaken any additional initiatives designed to ensure that Seminole and its Members investigate the availability of load management?

A Yes. One of the things that we do, Commissioner, and have done since, oh, the mid '80s is, we've set up a load management working group with our Member systems where we routinely meet, analyze the effectiveness of our load management programs, and try to jointly develop ways to improve those load management programs over time. So we have set up those kinds of internal mechanisms within Seminole and its Member systems to be able to ensure that load management is being conducted in an effective manner.

Q And in response to Commissioner Deason, you said

that Seminole's reserve margin would be in the mid twenties, summer peak, if one includes the 150-megawatt FPC contract. Would you elaborate briefly on the role that FPC contract plays in Seminole's portfolio?

A The system intermediate purchase that I referred to is a real valuable resource to us. It's priced slightly higher than Calpine as a resource on our system, but we have the -- again, one of the things that Seminole tries to do in all of its power supply arrangements is to develop optionality to give us flexibility to react in a changing environment. And that contract gives us the right on three years' notice to terminate or reduce that quantity.

So we're still constantly evaluating whether or not to retain that arrangement at the 150-megawatt level, so that's why I wanted to clarify that that was in there and the number that I was giving out.

Q So given that option, is your reserve margin necessarily going to be as high as 25 percent?

A It might not be.

MR. McGLOTHLIN: No further questions.

CHAIRMAN JACOBS: Any further questions? You're excused, Mr. Woodbury.

(Witness excused.)

MR. McGLOTHLIN: I move Composite Exhibit 1.

CHAIRMAN JACOBS: Without objection, show Exhibit 1 is admitted.

(Exhibit 1 admitted into the record.)

CHAIRMAN JACOBS: So we'll proceed now with the other witnesses. Staff.

MS. ISAAC: We don't have any more questions unless you have questions for Mr. Eves.

CHAIRMAN JACOBS: Okay. No, I don't, unless any other Commissioner has. Very well. So why don't we start -- I guess we'll start with Seminole Calpine witnesses, and we'll just go down the list.

MR. McGLOTHLIN: If it's appropriate, Chairman Jacobs, I'd like to move that Mr. Zimmerman's prefiled testimony be incorporated into the record as though read.

CHAIRMAN JACOBS: Without objection, show Mr. Zimmerman's testimony entered into the record as though read.

MR. McGLOTHLIN: I'd like to note that this morning I gave the court reporter two replacement pages, making small changes to the prefiled testimony. The first change on Page 3 reflects that Mr. Zimmerman supplied an additional exhibit, so he has six exhibits instead of five.

And on Page 15, we've changed a reference to a

memorandum of understanding to the purchased power agreement. Those have been given to the court reporter already.

(NOTE: Attorney McGlothlin misspoke; the changes occur on Page 16 instead of Page 15 of Mr. Zimmerman's direct testimony.)

So at this point, I move -- I ask that Mr. Zimmerman's Exhibits 1 through 6 be given an identification number.

CHAIRMAN JACOBS: Well, before we do that, we should make sure that the testimony is as amended.

MR. McGLOTHLIN: Yes.

CHAIRMAN JACOBS: Okay. So Mr. Zimmerman's testimony is as amended. And his Exhibits GSZ-1 through GSZ-6 now?

MR. McGLOTHLIN: That's correct.

CHAIRMAN JACOBS: And we will make that Composite Exhibit 2.

(Exhibit 2 marked for identification.)

MR. McGLOTHLIN: I move Composite Exhibit 2.

CHAIRMAN JACOBS: Without objection, show Exhibit 2 admitted.

(Exhibit 2 admitted into the record.)

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION
DIRECT TESTIMONY AND EXHIBITS OF GARL S. ZIMMERMAN
ON BEHALF OF SEMINOLE ELECTRIC COOPERATIVE, INC.
DOCKET NO. 001748-EC
DECEMBER 4, 2000

Q. Please state your name and business address.

A. My name is Garl S. Zimmerman. My business address is 16313 North Dale Mabry Highway, Tampa, Florida 33618.

Q. By whom are you employed and in what position?

A. I am employed by Seminole Electric Cooperative, Inc. ("Seminole"), as Manager of System Planning.

Q. Please describe your duties with Seminole.

A. In my capacity as Manager of System Planning, I am responsible for generation and transmission planning. My duties include coordination of our generation and transmission planning with other departments within Seminole and with other utilities. My responsibilities include evaluating various power supply proposals that Seminole receives and making recommendations to Seminole's management on the subjects of entering purchase contracts and/or building Seminole's own generating units.

QUALIFICATIONS AND EXPERIENCE

Q. Please summarize your educational background.

A. I received a Bachelors degree in Electrical Engineering from the University of Florida in 1964.

Q. Please summarize your employment history and work experience.

A. I have 32 years of experience in the electric power industry. In 1965, I worked for Tampa Electric Company as a distribution engineer. From 1966 through 1969, I served as a communications officer in the U.S. Air Force and returned to Tampa Electric in 1970 where I worked as an engineer and senior engineer in power plant engineering, substation engineering and power plant construction. In 1981, I joined Seminole Electric Cooperative as System Protection Engineer. I assumed my present position as Manager of System Planning approximately 10 years ago.

In addition to my duties at Seminole, I am active in a number of industry activities. Within the Florida Reliability Coordinating Council ("FRCC"), I serve as the Chair of the Compliance Working Group and as Seminole's alternate member of the Engineering Committee. I also serve as the FRCC representative on the North American Electric Reliability Council's Compliance Review Working Group.

Q. Do you hold any professional certifications or memberships in any professional organizations?

A. I am a registered Professional Engineer in the State of Florida and a Senior Member of the Institute of Electrical and Electronic Engineers ("IEEE") Power Engineering Society.

SUMMARY AND PURPOSE OF TESTIMONY

Q. What is the purpose of your testimony?

A. In my testimony I will provide an overview of Seminole's generation planning process; identify Seminole's next need for capacity; describe Seminole's all source

bidding process; provide a summary of the economic analysis performed in the evaluation of the proposals; and discuss the consequences that would attend a delay in the plan to meet the identified need. In doing so, I will discuss the overall methodology that Seminole uses for planning, including our reliability criteria and our review of generating technologies. I will provide information on the detailed analysis that Seminole performed to determine that the Calpine proposal is the best alternative to meet our identified need.

Q Are you sponsoring any exhibits to your testimony?

A. Yes. Attached are my Exhibit Nos. ___ - _____(GSZ-1 - GSZ- 6). In addition, I am sponsoring the following portions of Volume I of Exhibits to the Joint Petition: Subparts 1 through 5 of Section C, including the tables and figures therein, and Appendix I-B (the RFP).

Q. Please summarize Seminole's resource planning process.

A. As Seminole witness Tim Woodbury describes in his testimony, Seminole provides electrical power to ten Member cooperatives. Seminole's primary long-range planning goal is to develop the most cost-effective way to meet its Members' load requirements while maintaining high system reliability. Seminole's process for optimizating the selection of resources is based primarily on a measurement of total revenue requirements. For a not-for-profit cooperative, revenue requirements translate directly into rates to our Member distribution cooperatives. The plan with the lowest revenue requirements is generally selected, assuming that other factors, such as impact on reliability, initial rate impact, and strategic considerations, do not

warrant a departure from an analysis based strictly on economics. Seminole also recognizes that planning assumptions change over time. Planning decisions must be robust and are, therefore, tested over a variety of sensitivities.

Q. Please summarize Seminole's reliability criteria.

A. Seminole presently uses a minimum 15% system peak reserve margin as its primary reliability criterion. To meet this criterion, supply plans include adequate firm resources having a total capacity at least 15% greater than Seminole's projected maximum annual peak load obligations in each year of the planning period. (Occasionally, Seminole's share of operating reserves allocated by the FRCC requires Seminole to maintain total reserves which exceed the 15% figure; in that event, the higher figure becomes the minimum criterion.) Since the mid-1980s, Seminole has also used a 1% Expected Unserved Energy ("EUE") criterion, which historically resulted in a reserve margin greater than the 15% criterion. As Seminole's system and resources have grown and diversified, the capacity values associated with meeting each of the two criteria have approached each other and have in fact crossed over, such that the 15% reserve margin criterion presently drives Seminole's need to add capacity resources.

Q. Why does Seminole use two different reliability criteria?

A. Each criterion views the reliability of the system from a different, but needed, perspective. The reserve margin views the system at a point in time. It measures reliability on the basis of data that is given or assumed as of the time the measurement is made. The EUE, by contrast, is a probablistic technique. It gauges

the probability that certain events will occur during a given annual period and measures the extent to which the utility conducting the analysis will likely be unable to meet end users' requirements during that period. Because of the different focus of each, there are circumstances in which the use of a single criterion may not provide a complete picture of the reliability of the system.

Q. Can you provide an example?

A. Yes. For instance, Mr. Woodbury mentioned in his testimony that our contractual first call right to the Hardee Power Station capacity pursuant to our contract with TECO Power Services is limited to certain factual circumstances. This contract purchase makes a significant contribution to the reliability of Seminole's system that cannot be ignored. Accordingly, Seminole's practice is to include the Hardee Power Station capacity in the calculation of Seminole's installed reserves. The alternative, given the fact that with the 295 MW of first call capacity Seminole has addressed its most critical supply contingency, would be to adopt a lower reserve margin standard. The need to make this choice illustrates the limitations on the ability of an instantaneous, deterministic calculation such as reserve margin to portray and measure the effect on the system of a first call resource that is subject to certain contingencies. On the other hand, as I mentioned earlier, the measurement of EUE is a probablistic calculation. As the term implies, the methodology deals in terms of the probability that contingencies–such as the outages or deratings that would trigger Seminole's contract rights to Hardee Power Station capacity–will occur in the future. As such, it is better suited to quantifying the contribution of a first call resource.

Inasmuch as Seminole has reached the point at which it has an extremely low EUE, the reserve margin criterion will likely continue to be the first to be violated. However, the EUE calculation continues to provide a different and useful perspective.

Q. Please elaborate on the analysis that led Seminole to conclude it should add capacity.

A. Utilizing the load forecasts that we developed in conjunction with the Members, we compared the available resources with the projected loads over time. We identified the point in time when, according to the comparison, the system would not be able to meet the peak load and provide a reserve margin of 15%. Our study indicated that would first occur -- absent action on Seminole's part -- in 2004. Our projections indicated that the reserve margin would fall to 11.6% in that year and decline thereafter. The situation is portrayed in Exhibit No. _____ (GSZ-1). This table is also included in Volume I of the Exhibits to the Joint Petition.

Q. What factors are projected to contribute to the impact on reserve margin in 2004?

A. Principally, load growth in Seminole's Direct Service Area and in the portion of the service area that lies within FPL's transmission control area will cause the reserve margin to decrease over time. In addition, two of our power purchase agreements will terminate in 2004: a contract with OUC for 75 MW; and a contract with JEA for 53 MW. (See Tim Woodbury's Exhibit No. ____ (TSW-2).

Q. Having determined the year in which capacity would be needed to maintain a

minimum 15% reserve margin, what was the next step in the planning effort?

A. Using the PROMOD IV and PROSCREEN computer models, in which we placed unit-specific operating data and fuel costs derived from our in-house fuel forecast, we added hypothetical increments of capacity, simulated the operation of the system over time, and calculated the net present value of revenue requirements ("NPRR") associated with adding each such increment of capacity to the system.

Q. What, if any, non-generating alternatives did Seminole consider in the processes that led it to select the Osprey Energy Center?

A. Seminole's projections of its power supply needs include and reflect the effects of the energy conservation and demand-side management programs and activities of Seminole's Member cooperatives. In the simplest terms, our generation planning process assumes that our Member systems achieve their projected capacity and energy reductions through those programs and activities, such that the need shown is net of these conservation measures. The addition of the most desirable, cost-effective source of generation to satisfy the need that results from such a calculation becomes, by definition, cost-effective relative to other conservation measures. Nevertheless, as I will describe, we solicited demand-side proposals prior to deciding that Calpine's proposal is the solution of choice.

Q. What types of generating capacity additions did you study?

A. On a continuing basis, Seminole stays abreast of the cost and capabilities of proven, commercially viable technologies available to provide base, intermediate, or peaking capacity. These would include pulverized coal units (base); combustion turbines, oil-

or-gas-fired (peaking); and combined cycle units, in which a combustion turbine generator supplies exhaust heat to a heat recovery steam generator, which is coupled to a steam turbine (intermediate/base load).

Q. Why do you categorize the technologies as base, intermediate, and peaking?

A. Each technology is characterized by a mix of fixed costs and variable costs. As a rule, one incurs higher fixed costs only if by doing so one also reduces variable costs, such that total (fixed and variable) costs are minimized. The easy example - and one which is pertinent here - is the pulverized coal unit. The technology is proven and reliable. Coal is in ample supply and is one of the cheapest fuels available. However, the cost of installing a pulverized coal unit is very high relative to other available generating technologies. As a consequence, a coal unit would be a poor choice if indications were that it would not operate often enough to generate fuel savings sufficient to offset the high fixed costs.

The peaking unit is at the other end of the fixed/variable spectrum. It is comparatively inexpensive to install, but the operating costs are so high that at a relatively low level of usage another technology - the combined cycle unit - becomes more cost-effective.

As the term implies, the fixed costs of the intermediate technology are lower than a base load unit, but higher than a peaking unit. The efficiency of the combined cycle unit makes it attractive over a relatively wide range of capacity factors, including some that would be regarded as virtually "base-loaded" in nature.

Q. Currently, what does Seminole regard to be the breakpoint capacity factors for

base loaded coal plants, intermediate combined cycle units, and combustion turbines used in a peaking mode?

A. As shown in my Exhibit No. _____ (GSZ-2), the breakpoint we currently use to screen the applicable technologies between peaking (combustion turbines) and intermediate (combined cycle) types of capacity is between 15% and 17%. This means that if a unit dispatches at a capacity factor greater than 15% to 17%, it should be an intermediate type of capacity rather than peaking. The screening curves for base (pulverized scrubbed coal) and intermediate (combined cycle) cross over at a capacity factor of approximately 87%, indicating that, with current capacity and fuel pricing assumptions, the combined cycle unit is the preferred technology for all applications with a capacity factor between 17% and 87%.

Q. Which types of generators did you model during the initial production costing simulations?

A. The simulations provided the amount of energy that would be associated with the reserve margin shortfall and the hours in which usage would occur. The economics of a pulverized coal unit are such that a much higher energy usage across more hours would be needed to overcome the high fixed costs of such a unit. Accordingly, we ruled out the pulverized coal-fired unit at an early stage. We modeled the impact of gas-fired combined cycle units and gas-fired simple cycle turbines on the system.

Q. How much generating capacity was shown to be needed by these exercises?

A. The original analysis, based on the load forecast in our 2000 Ten Year Site Plan, showed that 160 MW would be needed in 2004 to satisfy the minimum criterion of

a 15% reserve margin. (This amount was adjusted upward during the course of the procurement process, as I will explain.)

Q. Once the need in 2004 and subsequent years had been identified, what happened next?

A. We prepared and issued a Request for Proposals ("RFP") for purchased power and demand side offers. Simultaneously, we asked Black and Veatch to fully characterize and price a combined cycle unit and a peaking unit of the type it would build for Seminole on a turnkey basis.

Q. Please describe the RFP.

A. I have attached a copy of the RFP as Exhibit No. ___ (GSZ-3). Basically, we invited the full universe of interested providers–IPPs, utilities, and marketers–to present proposals designed to meet our need. As I mentioned, the RFP was an "all source" request, meaning that we would entertain demand-side proposals as well as supply-side proposals. We indicated that we would consider proposals for combined cycle and/or peaking capacity, in the range of 160 to 600 MW. The RFP specified that Seminole had a minimum need of 160 MW of intermediate type capacity, beginning May 1, 2004 and, in addition, would evaluate an additional 440 MW of capacity to displace existing power supply arrangements, beginning January 1, 2004. The RFP was posted on Seminole's website and appeared there until the conclusion of the designated response period.

Q. How many proposals did Seminole receive?

A. We received a total of 14 responses, all of which were supply-side proposals.

Q. Please describe how you evaluated the responses to the RFP.

A. First, we determined that to meet our minimum reserve criterion (given the existing inventory of resources and our recently updated load forecast) that we needed to add 201 MW of capacity by January1, 2004.

Q. What was the next step in the evaluation process?

A. We evaluated the peaking and intermediate categories separately. The evaluation occurred in several steps. After we identified the most cost-effective peaking proposal, we compared it to the cost of additional Partial Requirement ("PR") power from FPC, then compared it to the most economical of the combined cycle proposals, which were studied separately.

Q. How did you compare the peaking proposals?

A. Our production costing simulation, in which we modeled the generic parameters of a GE 7 FA combustion turbine, provided utilization characteristics that we could expect from a peaking unit. The demand costs proposed by the respondents, hours of service, the number of unit starts, and a fixed value for energy enabled us to calculate an average annual cost in dollars per megawatt hour that would be associated with each proposal. The results are shown in my Exhibit No. __(GSZ-4), which also appears in Volume I, Section C, of the Exhibits to the Joint Petition.

Q. Why did you compare the lowest costing peaking proposal with the cost of additional PR purchases, and what was the result of the comparison?

A. Simply put, there would be no reason to contract for the peaking capacity if we could save money by buying more PR power. And, in fact a comparison showed that the

peaking proposal would be more costly than additional PR power.

Q. How did you determine which of the combined cycle proposals was the most economical?

A. The initial step was similar to the first step in the comparison of peaking alternatives. Choosing a GE 7FA 2x1 combined cycle configuration as the proxy, we simulated the manner in which a generic combined cycle unit would operate in our system and developed utilization characteristics. Because the respondents had proposed differing amounts of capacity, it was necessary to calculate an average annual cost in $/MWH so that an apples-to-apples comparison could be made. We then performed additional production costing simulations for the purpose of a more rigorous comparison of the top four combined cycle proposals.

Q. How did the second phase of the evaluation of intermediate capacity proposals differ from the first?

A. The first phase amounted to a rough first cut designed to produce a short list of the top proposals. The production costing simulation was performed with a generic proxy, and the operating characteristics were use to calculate the stand-alone contract costs for each proposal. This approach is less detailed and refined than a full-blown calculation of system costs, but serves well to screen the proposals for further study.

Q. Did the results of this preliminary analysis affect the parameters of the overall study?

A. Yes. I mentioned earlier that we had initially concluded that Seminole needed to add 201 MW to existing resources. Our analysis revealed at this point that the combined

cycle bids were more economical than an existing 150 MW power purchase contract with FPC. In addition, this particular contract gives Seminole the right to adjust or terminate the arrangement by giving FPC advance notice of three years. To reflect the opportunity to substitute a more economical source for this contract, we revised the needed capacity from 201 to 350MW.

Q. Does the fact that Seminole revised the capacity addition to 350 MW mean that Seminole had decided at that point to terminate the FPC contract?

A. No. While that is an option that Seminole may consider in the future, the upward revision to the amount of capacity to be added did not signify a decision to terminate the FPC contract. In fact, there are reasons why Seminole could very well choose to retain the contract. Including the Calpine purchase and the 150 MW purchase from FPC, the resulting reserve margin is 23.2%, which is not excessive in any event. Seminole could decide to retain the FPC contract to provide a higher-than-minimum level of reserves, or as a hedge against future contingencies. All in all, the ability to keep or terminate the FPC contract constitutes a component of the strategic flexibility that Mr. Woodbury discusses in his testimony.

Q. Please continue with your description of the second phase of the evaluation of intermediate proposals.

In the second phase we mathematically "inserted" each specific proposal into the system individually, and performed production costing simulations to measure the overall system revenue requirements associated with each bid.

Q. What were the results of this more rigorous analysis?

A. The Calpine Osprey proposal, which was ranked No. 1 in the preliminary analysis, retained its position as the most cost-effective submittal. The more detailed simulation indicated that Seminole would employ its 350 MW commitment of Osprey capacity at an initial capacity factor of 60% and that it would increase to 70% over the period 2004-2008. Compared to the second, third, and fourth best proposals, the Calpine Osprey bid will save Seminole $_____, $_____, and $_____ in total revenue requirements, (net present value) over the period 2004-2008 respectively. The results are shown on Exhibit No. _____ (GSZ-5). In Exhibit No. _____(GSZ-5) we compared the bids after expressing each in terms of the equivalent 350 MW offer. The results are also shown in Volume I, Section C of the Exhibit to the Joint Petition.

Q. What did Seminole do next?

A. We compared the Calpine proposal with the self-build option.

Q. How did you develop the cost of the self-build option?

A. We began with the direct construction costs provided to us by Black and Veatch. We developed the revenue requirements by making certain assumptions regarding loan amounts, interest rates, and term of the loan. Because we have not firmed up fuel or fuel transportation arrangements for a self-build option, we assumed the fuel and fuel transportation costs would be equivalent to those of the Calpine facility, thereby enabling us to compare the self-build to Calpine on a fixed cost basis only.

Q. Please elaborate on the financial assumptions you employed.

A. Seminole traditionally has evaluated financing assuming a 30-year loan guaranteed by the Rural Utilities Services ("RUS"). Seminole developed the costs using this method, but also looked at an RUS-guaranteed 6% loan having a payback period of 17 years. This will be the amount of time remaining on the Seminole - Member Wholesale Power Contract in 2004. As a sensitivity, Seminole also, looked at a non-RUS guaranteed loan with 7 % interest.

Q. Did you make any assumptions regarding the proposed power purchase transaction on Seminole's cost of capital?

A. We assumed there would be no impact.

Q. Please explain.

A. RUS is the primary source of our funding. The criterion that RUS applies to gauge risk relates to interest coverage ratings. In our experience, RUS does not regard a power purchase agreement as more risky financially than construction and ownership.

Q. Once you fully developed the revenue requirements of the self-build option, how did it compare with the Calpine proposal?

A. When viewed on a five-year basis, the Calpine proposal was more cost-effective, saving Seminole $_____ over the initial term. This is the pertinent time frame for the analysis, in view of the reopener provision to which Calpine and Seminole have agreed.

Q. What happened after Seminole determined that the Calpine proposal is its best alternative to meet its 2004 need for capacity?

A. Seminole and Calpine successfully negotiated basic commercial terms, presently incorporated in a Power Purchase Agreement, which Seminole witness Tim Woodbury will describe.

Q. What, if any, adverse effects would Seminole experience if the Osprey Project were not brought into service as proposed by Calpine and Seminole?

A Seminole requires capacity in the 2004 time frame. If the Calpine project is delayed, Seminole would either expose its members to an unacceptably lower level of reliability or incur increased costs -- possibly including the very high cost of short-term contractual arrangements -- to provide the same measure of reliability. During the period of the delay, Seminole would also be denied the flexibility and the strategic advantages that help make the Calpine Osprey proposal Seminole's superior choice.

Q. Does this conclude your direct testimony?

A. Yes.

MR. McGLOTHLIN: The next Seminole witness is William Lawton. I request that Mr. Lawton's prefiled direct testimony be incorporated in the record as though read.

CHAIRMAN JACOBS: Without objection, show Mr. Lawton's testimony entered into the record as though read.

MR. McGLOTHLIN: I ask that Mr. Lawton's Exhibits 1 though 4 be assigned a number.

CHAIRMAN JACOBS: We'll make that a composite exhibit, 3, WTL-1 through WTL-4.

(Exhibit 3 marked for identification.)

MR. McGLOTHLIN: I move Composite Exhibit 3.

CHAIRMAN JACOBS: Without objection, show Exhibit 3 admitted.

(Exhibit 3 admitted into the record.)

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION
DIRECT TESTIMONY AND EXHIBITS OF WILLIAM T. LAWTON
ON BEHALF OF SEMINOLE ELECTRIC COOPERATIVE, INC.
DOCKET NO. 001748-EC

December 4, 2000

Q. Please state your name and business address.

A. My name is William T. Lawton and my business address is 16313 North Dale Mabry Highway, Tampa, Florida 33618.

Q. By whom are you employed and in what capacity?

A. I am employed by Seminole Electric Cooperative, Inc. ("Seminole") as Staff Economist.

Q. Please describe your background and experience.

A. I have over 10 years of experience in electric demand forecasting. My electric utility forecasting experience includes work at Kentucky Utilities Company as a Financial Analyst and at Seminole as a Corporate Planning Analyst and Staff Economist. I received a Bachelor of Arts degree with honors in Economics from Michigan State University and a Master of Arts degree in Economics from the University of Detroit.

Q. What are your current responsibilities?

A. As Seminole witness Tim Woodbury describes, Seminole was formed to assist its Member cooperatives with the generation and purchasing of electrical power for the benefit of their respective customers/Members. A fundamental function in that regard is the projection of Members' future requirements. The two primary responsibilities of my present position are to develop forecasts of electric demand

for Seminole and its Member cooperatives and to conduct residential customer surveys for the Members. Both are joint efforts between Seminole and its Member cooperatives.

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to describe Seminole's load forecasting methodology and the key results of the most recent forecast, which was the basis for the conclusion that Seminole needs to add capacity in 2004.

Q. Are you sponsoring any exhibits in this case?

A. Yes. I have prepared and attached to my testimony Exhibit Nos. _____ (WTL-1 - WTL-4). These exhibits present our load forecast results in both tabular and graphic form. I also sponsor Sections E and F to Volume Appendix I-A of the Exhibits to the Joint Petition.

Q. Please summarize Seminole's load forecast methodology.

A. Seminole develops energy and demand forecasts for each of its Member cooperatives. Demographic, economic, energy usage, and weather characteristics for each Member's service area are analyzed and projected. Seminole system projections are an aggregation of the Member-level forecasts. The Seminole forecast is a cooperative effort between Seminole and its Member systems, and is conducted in close coordination with the Rural Utilities Service ("RUS"). Each Member provides input and reviews its forecast at several stages. My testimony presents Seminole's latest long-term forecast.

Q. With what frequency does Seminole prepare a load forecast?

A. Seminole prepares a load forecast on an annual basis. Pursuant to the schedule in its annual plan, which schedule is approved by the RUS, Seminole completed its

1999 load forecast in July of that year. This was the load forecast on which the Ten Year Site Plan of April 2000 was based. It necessarily was the current load forecast at the time the Request for Proposals ("RFP") described in Garl Zimmerman's testimony was issued. In July 2000, Seminole again completed its annual load forecast. That forecast is the one that was used to evaluate responses to the RFP. It is the one that I will address in my testimony and in my exhibits.

Q. Does the forecast that you will address in your testimony differ in methodology from the one that preceded it?

A. No.

Q. According to the testimony of Garl Zimmerman, based on this forecast, Seminole's system planners increased the amount of capacity to be added in 2004 by some 40 megawatts. What caused the increase?

A. Principally, the increase was the result of projected increases in commercial and industrial activity by some of our Members, in addition to smaller, "across-the-board" projections.

Q. Please describe the models upon which Seminole's forecasts of peak demands and net energy for load are based.

A. Seminole uses both econometric and end-use modeling techniques. Econometric forecasting techniques utilize statistical regression methods to estimate the relationship among the variables used in the models. End-use techniques estimate the effects of heating, cooling, and water heating appliances on energy usage and demand. The combination of these techniques produces a composite model which yields Seminole's load forecast.

Q. Please summarize the key assumptions of the forecasts that are derived from

these models.

A. Demographic, economic, end-use, and weather data are the four principal factors behind Seminole's forecasts. The main demographic and economic data are the population and income projections. They are obtained from the Bureau for Business and Economic Research ("BEBR") at the University of Florida. End-use information is obtained from Seminole's Residential Survey. Information on housing characteristics, demographic composition, and appliance saturations has been collected since 1980 for each Member system. Weather data is obtained from the National Oceanic and Atmospheric Administration ("NOAA"). Seminoles uses 20-year averages of six weather stations in and around the Members' service areas as representative of normal weather.

Q. Please describe Seminole's historical and projected seasonal peak demands, energy, number of customers, and load factors.

A. Seminole's historical and projected summer and winter peak demands are shown in Exhibit Nos. ____, (WTL- 1, 4). From 1989 through 1999, Seminole's summer peak demands grew at an annual average compound growth rate ("AAGR") of 4.7% per year. From 2000 through the summer of 2010, Seminole's summer peak is projected to grow from 2,599 MW to 3,677 MW, representing an AAGR of 3.4% per year.

Historical winter peak demands for the period 1988-89 through 1998-99 grew at an AAGR of 4.8% per year. Winter peak demands for the period 1999-00 through the winter of 2009-2010 are projected to grow from 3,174 MW to 4,589 MW, representing an AAGR of 3.8% per year.

Seminole's historical and projected consumers are shown in Exhibit No. ___

(WTL- 2). Total consumers grew at an AAGR of 2.8% per year for the period 1989-1999. They are projected to increase at an AAGR of 2.3% per year for the period 2000-2010. Historical and projected usage per customer has increased at an AAGR of 1.8% per year for the period 1989 through 1999 and is projected to increase at an AAGR of 1.3% per year over the 2000 through 2010 period. Seminole's historical and projected energy is shown in Exhibit No. ____ (WTL-3). Seminole's energy requirements have grown at an AAGR of 4.5% per year from 1989-1999 and are projected to increase at an AAGR of 3.6% per year over the 2000-2010 period.

Q. Does Seminole's forecast reflect the effects of conservation and load management?

A. Yes. Seminole's load forecast methodology captures the effect of its Members' residential and commercial conservation and load management activities. Projected maximum load management reductions for the winter and summer seasons are shown in Exhibit No. ___ (WTL-1). Seminole estimates it will have 250 MW of load management capabilities in the winter and 204 MW in the summer over the forecast period. In the aggregate, our Members are not projecting to increase their load management capabilities over the forecast period.

Q. What efforts has Seminole made in the conservation area?

A. Seminole does not have a direct role in conservation activities, which typically involve interaction with the end use consumer. What Seminole has done is to design a rate structure that will send its Members a price signal that reflects Seminole's cost of supplying power in the aggregate. Each Member may then use this price signal to evaluate the cost effectiveness of conservation measures for its

cooperative.

Q. How has Seminole structured its rates to achieve the maximum benefits from load management?

A. Seminole has a rate structure, which has been approved by its Members, that bases Seminole's billings to its Members on their aggregated system demand at the time of Seminole's peak. This enables Seminole to concentrate its load management on efforts to control the overall system peak rather than the peaks of ten different utilities.

Q. Does that complete your direct testimony?

A. Yes.

MR. McGLOTHLIN: The next Seminole witness is Robert Woodall. Mr. Woodall also sponsors a supplemental exhibit, so his exhibits are 1 through 4. I request that the prefiled direct testimony of Mr. Woodall be inserted in the record as though read.

CHAIRMAN JACOBS: Without objection, show Mr. Woodall's testimony entered into the record as though read.

MR. McGLOTHLIN: I request an exhibit number be assigned to his exhibits.

CHAIRMAN JACOBS: That is Composite Exhibit 4.

(Exhibit 4 marked for identification.)

CHAIRMAN JACOBS: You know what? We're saying rebuttal and direct -- direct and rebuttal testimony --

MR. McGLOTHLIN: We have no rebuttal in this case.

CHAIRMAN JACOBS: Okay. I thought I saw one for Mr. Woodbury. Oh, no, that's just exhibits. Okay.

MR. McGLOTHLIN: And I move Composite Exhibit 4.

CHAIRMAN JACOBS: Without objection, show Exhibit 4 admitted.

(Exhibit 4 admitted into the record.)

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION
DIRECT TESTIMONY AND EXHIBITS OF ROBERT L. WOODALL
ON BEHALF OF SEMINOLE ELECTRIC COOPERATIVE, INC.
DOCKET NO. _____-EC

DECEMBER 4, 2000

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

A. My name is Robert L. Woodall. I am employed by Seminole Electric Cooperative as Manager of Fuel Supply. My business address is 16313 N. Dale Mabry Highway, Tampa, Florida 33618.

Q. Please describe your duties and responsibilities in that position.

A. I am responsible for buying and transporting fuel to Seminole's facilities at minimum cost; assuring that fuel quality is within specifications; maintaining adequate inventories; and forecasting fuel prices.

Q. Please summarize your background and experience.

A. In the past fifteen years, I have managed a wide variety of fuel activities for Seminole involving coal, distillate oil, and natural gas. My department conducts daily operations to purchase and transport coal and distillate oil to the Seminole plant. Under the terms of the agreement between TECO Power Services and Seminole, pursuant to which Seminole has first call on 295 MW of the capacity of the Hardee Power Station whenever certain Seminole plants experience outages or deratings, Seminole is deeply involved in the procurement and transportation of fuel to the Hardee plant. As a member of the team assigned by Seminole to carry out

those responsibilities, I have participated in many projects related to providing the Hardee Power Station with a supply of natural gas and distillate oil. This includes participating in the negotiation of natural gas pipeline capacity for the Hardee Power Station, approving nominations of natural gas for Seminole's generation at the Hardee Power Station, and approving gas and oil supply contracts proposed by Hardee Power Partners. I managed Seminole's acquisition of firm, permanent, relinquished capacity on the Florida Gas Transmission system pipeline to provide transportation to Seminole's Payne Creek Generating Station, which is presently under construction. I have also been designated Seminole's lead negotiator for pipeline capacity from the proposed new pipelines which may come into Florida in the future.

My education includes a Bachelor of Science degree in Process Engineering from Western Michigan University and a Master of Science degree in Industrial Management from Massachusetts Institute of Technology. During the 17 years prior to joining Seminole, my work was concentrated in the energy field. At Dravo Corporation, I was involved with the market studies and new business development projects in the oil, gas and coal industries. For Valley Camp Coal Company, I was responsible for all coal sales, marketing, transportation, and contract negotiations.

I have been responsible for preparing fuel forecasts which were used to make major corporate decisions on numerous occasions over the past 25 years.

Q. Have you previously testified before the Commission?

A. Yes, I presented the fuel forecasts which supported the Commission's determination of need for Hardee Power Station Unit #1 and #2, and the Payne

Creek Generating Station.

Q. What is the purpose of your testimony?

A. I will present the fuel price forecast that Seminole used in the economic evaluations of available alternatives that led Seminole to identify the Osprey Energy Center proposed by Calpine as the most cost-effective choice to meet Seminole's need for capacity.

Q. Are you sponsoring any exhibits to your testimony?

A. Yes. Attached to my testimony are Exhibit Nos. ____ (RLW-1 - RLW-3) which relate to our fuel forecast. In addition, I am sponsoring Section D of Volume I of the Exhibits to the Joint Petition.

FUEL PRICE FORECAST

A. Please describe the specific steps used in preparing the fuel forecast.

A. The procedure reflects my conviction that fuel prices are a function of fundamental relationships which establish long-term trends. While we may observe short-term volatility in the price of a fuel, over time the underlying long-term trend will be reestablished. Guided by this basic proposition, we followed similar steps to develop the forecast for each fuel. First, we examined the long-term actual annual price history and recent actual prices. Next, we examined industry trend data and price forecasts by others. This review included information regarding past, present, and future market trends, technological changes, government policy, OPEC decisions, and other factors which influence energy prices. We then forecasted prices for each fuel at its source based upon the unique set of factors that influence the price for that fuel.

Q. Please summarize the results of your price forecast.

A. Exhibit No. __(RLW-1) is a table showing Seminole's 10-year forecast of prices for natural gas, distillate oil and coal at its source. Prices are forecast in nominal dollars expressed as dollars per million BTU ("$/mmBtu"). A base case forecast is presented, as well as high range and low range forecasts.

This information is depicted graphically in Exhibit No. __(RLW-2), which is also included in Volume I of the Exhibits to the Joint Petition. The top three lines on the graph illustrate the base case, high range and low range price of distillate oil for the 10-year period of the forecast. In the base case, the distillate oil price starts at $4.33/mmBtu in 2000 and increases to $4.86 mmBtu in nominal dollars in the year 2009. Over this 10-year time period, the nominal distillate oil price grows at an average rate of 1.16% per year. In 2004, when the proposed Osprey Energy Center is scheduled to come on-line, the price of distillate oil is forecast to be $4.56/mmBtu in nominal dollars.

The middle three lines on the graph illustrate the base case, high range and low range price of natural gas for the 10-year forecast time period. In the base case, the natural gas price starts at $2.34/mmBtu in 2000 and increases to $2.90 mmBtu in nominal dollars in the year 2009. Over this 10-year time period, the nominal natural gas price grows at an average rate of 2.17% per year. In 2004, when the proposed Osprey Energy Center is scheduled to come on-line, the price of natural gas is forecast to be $2.57/mmBtu in nominal dollars.

The bottom three lines on the graph illustrate the base case, high range and low range prices of coal for the 10-year forecast time period. In the base case, the

coal price starts at $0.82/MmBtu in 2000 and increases to $0.90 mmBtu in nominal dollars in the year 2009. Over this 10-year time period, the nominal coal price grows at an average rate of 0.90% per year.

Q. Have you compared the results of your natural gas forecast to forecasts made by other parties? If so, what do those comparisons show?

A. Yes, I have. Exhibit No. __(RLW-3), which is also included in Volume I of the Exhibits to the Joint Petition, shows Seminole's forecast of the wellhead price of natural gas compared to the following four national forecasts:

American Gas Association - AGA

Data Resources International - DRI

Department of Energy, Energy Information Administration - EIA

Wharton Economic Forecasting Associates - WEFA

Q. Please describe how you prepared Exhibit No. __(RLW-3).

A. Seminole obtained the data that was used to prepare this exhibit from the EIA publication "Annual Energy Outlook 2000," which was published in December 1999. All forecast data was available only in real dollars. To prepare the comparison, Seminole converted the data into nominal dollars.

Only the EIA forecast contained annual data. The earliest year covered by the other forecasts is 2015. In order to compare the other forecasts to Seminole's forecast in 2009, Seminole extrapolated from 2015 to 2009.

Q. What does the comparison indicate with respect to the predicted price of natural gas?

A. At the start of the forecast time period in 2000, the EIA forecast is slightly below

the Seminole forecast. The EIA forecast shows prices increasing a little faster than Seminole's forecast. In 2004, when Seminole will begin receiving energy from the Osprey Energy Center both forecasts indicate a natural gas price of $2.57/mmBtu. At the end of the time period, EIA is indicating a price of $3.35/mmBtu, which is higher than any of the other forecasts depicted on the exhibit. The other forecasts range from $3.19 to $3.08/mmBtu. Seminole forecasts a price of $2.90/mmBtu for that year. The highest forecast is only 15% above the lowest forecast. The closeness of these forecasts provides confidence that Seminole's forecast is an appropriate tool with which to make long-term decisions related to natural gas.

Q. Does this conclude your direct testimony?

A. Yes.

MR. McGLOTHLIN: The Seminole witnesses collectively sponsor Volume 1 of the amended exhibits to the joint petition. I ask that an exhibit number be assigned to Volume 1 of the amended exhibits.

CHAIRMAN JACOBS: Could you restate that? I'm sorry.

MR. McGLOTHLIN: Yes. Attached to the joint petition for determination of need are two volumes of exhibits to the joint petition. Seminole witnesses are sponsoring Volume 1 of the two volumes that were part of the joint petition. I request that an exhibit number be assigned to Volume 1 which is being sponsored by the Seminole witnesses.

CHAIRMAN JACOBS: Okay. So this would be Volume 1 of the need determination application?

MR. McGLOTHLIN: Volume 1 of the amended exhibits to the amended joint petition, to be precise, yes, sir.

CHAIRMAN JACOBS: So this is not the application but only the exhibits.

MR. McGLOTHLIN: That's correct.

CHAIRMAN JACOBS: Okay. Should we make the application itself an exhibit as well before we --

MR. ELIAS: Mr. Chairman, I don't think that that's necessary. It's filed; it's a petition; it's a

pleading; it's not evidence.

CHAIRMAN JACOBS: Very well. Show that as Exhibit 5.

(Exhibit 5 marked for identification.)

MR. McGLOTHLIN: And I move Composite Exhibit 5.

CHAIRMAN JACOBS: Without objection, show Exhibit 5 admitted.

(Exhibit 5 admitted into the record.)

CHAIRMAN JACOBS: That takes care of all of yours?

MR. McGLOTHLIN: Yes, sir.

CHAIRMAN JACOBS: Very well. Mr. Wright.

MR. WRIGHT: Thank you, Mr. Chairman. Calpine's first witness is Mr. Timothy R. Eves. There is one -- or two, actually, typographic corrections to be made to his testimony. At Page 7, Line 6, references to Tables II-20 and to II-21 should be references to II-19 and II-20. I have given the court reporter a clean unbound copy of the testimony with this correction already made to it. And with that, I would move that Mr. Eves' testimony be entered into the record as though read.

CHAIRMAN JACOBS: Without objection, show the testimony of Mr. Eves as amended entered into the record as though read.

MR. WRIGHT: Mr. Eves also sponsors exhibits

appended to his amended direct testimony identified at this time as TRE-1 through TRE-5. I would ask that they be given an identification number.

CHAIRMAN JACOBS: That will be Composite Exhibit 6.

(Exhibit 6 marked for identification.)

MR. WRIGHT: And I move the admission of Composite Exhibit 6 into evidence of the record of this case.

CHAIRMAN JACOBS: Without objection, show Exhibit 6 admitted.

(Exhibit 6 admitted into the record.)

IN RE: JOINT PETITION FOR DETERMINATION OF NEED FOR THE OSPREY ENERGY CENTER IN POLK COUNTY BY SEMINOLE ELECTRIC COOPERATIVE, INC. AND CALPINE CONSTRUCTION FINANCE COMPANY, L.P.

AMENDED DIRECT TESTIMONY OF TIMOTHY R. EVES

Q: Please state your name and business address.

A: My name is Timothy R. Eves, and my business address is Two Urban Centre, 4890 West Kennedy Boulevard, Suite 600, Tampa, Florida 33609.

Q: By whom are you employed and in what position?

A: I am employed by Calpine Eastern Corporation ("Calpine Eastern"), as Director of Business Development for Florida.

Q: Please describe your duties with Calpine Eastern.

A: In my capacity as Director of Business Development for Florida, I am responsible for managing all of Calpine Eastern's development activities in Florida, including, among other things, coordinating regulatory matters and permitting activities for Calpine Eastern's Florida projects; participating directly in Calpine Eastern's marketing activities for the Osprey Energy Center (the "Osprey Project" or the "Project") and the Blue Heron Energy Center; and managing all aspects of the development of the Osprey Project.

AMENDED DIRECT TESTIMONY OF TIMOTHY R. EVES

QUALIFICATIONS AND EXPERIENCE

Q: Please summarize your educational background.

A: I received a Bachelor of Mechanical Engineering degree from the University of Detroit in 1979, a Master of Business Administration degree from Widener University in 1983, and a Juris Doctor degree from the University of Miami in 1988.

Q: Please summarize your employment history and work experience.

A: I have 21 years of experience in the electric power industry, 19 years of which I worked for Westinghouse Electric Corporation, and the remaining 2 years with BBI Power Corporation and Calpine Eastern. I began my career in 1979 as an Assistant Sales Engineer with Westinghouse Electric Corporation where I sold electrical equipment to architect/engineering firms for application on utility projects. From there I held marketing positions of increasing responsibility before being appointed Westinghouse's Manager of Customer Program Integration in July 1989. In this position, I managed a marketing group responsible for the coordination and sale of integrated generating plant services and modernization services to electric utilities. In December 1991, I was appointed the Regional Marketing Manager responsible for the sale of new unit power generation equipment and engineering, procurement, and construction services to

developers, utilities and architect/engineers in diverse markets across the United States and Latin America. I was appointed Director of International Marketing in January 1996, in which position I was responsible for managing the department responsible for selling new power generation equipment and engineering, procurement, and construction services to power plant developers, utilities, industrial users, and architect/engineers for projects located in Eastern Europe, the Middle East, and the Indian subcontinent. For most of my career with Westinghouse, I worked in Florida, where I had regular contact with various Florida utilities.

In June 1998, I began my employment with BBI Power Corporation as Senior Vice President with responsibilities for worldwide project development activities. My responsibilities included: project development, joint partner identification and negotiation of joint development agreements, determination of plant configuration, and financial analyses. I also negotiated purchased power and steam supply contracts, engineering-procurement-construction contracts, and conducted permitting and financing activities for various projects. My project development activities covered the Indian subcontinent, Eastern Europe, the Middle East, the Caribbean, and the United States with respect to developing natural gas and oil-fired combustion turbine units, coal-fired steam units, and biomass plants.

In October 1999, I accepted my current position with

Calpine Eastern Corporation as Director of Business Development. In this position, I am responsible for all of Calpine Eastern's development activities in Florida, including regulatory matters, permitting, and marketing activities for Calpine Eastern's Florida projects.

Q: What are your responsibilities with respect to the Osprey Energy Center?

A: As Director of Business Development for Florida, my responsibilities with respect to the Osprey Project include coordinating the regulatory and business activities relating to the permitting and construction of the Project, including coordination with our partner, Seminole Electric Cooperative, Inc. ("Seminole"). My responsibilities encompass coordination and oversight of several elements of power generation project development, including evaluating and selecting development opportunities, project design and engineering, negotiating power sales agreements, acquiring necessary land rights, permits and fuel resources, obtaining financing, and managing construction.

SUMMARY AND PURPOSE OF TESTIMONY

Q: What is the purpose of your testimony?

A: I am testifying on behalf of Calpine Construction Finance

Company, L.P. ("Calpine"), one of the joint applicants for the Florida Public Service Commission's ("Commission") determination of need for the Osprey Energy Center. My testimony describes Calpine and the relationship between Calpine, Calpine Eastern, their parent, Calpine Corporation, Inc., a Delaware corporation headquartered in San Jose, California, and other Calpine affiliates involved with the Osprey Project including Calpine Energy Services, L.P., and Calpine East Fuels, L.L.C. My testimony also addresses the Osprey Project, the Power Purchase Agreement ("PPA") between Calpine and Seminole for the purchase of firm capacity and associated energy from the Osprey Project, Calpine's need for the Project to meet its obligations to Seminole, the cost-effectiveness of the Project to Calpine, the economic viability of the Project, potential generating and non-generating alternatives to the Project considered by Calpine, and the action that Calpine and Seminole are asking the Commission to take in this proceeding.

Q: Please summarize your testimony.

A: Calpine Construction Finance Company, L.P., and Seminole Electric Cooperative, Inc. are petitioning the Commission for an affirmative determination of need for the Osprey Energy Center, a 529 MW natural gas-fired, combined cycle power plant

to be located in the City of Auburndale, in Polk County, Florida.

The Osprey Project utilizes state-of-the-art technology, with proven reliability, high efficiency, and a very benign environmental profile. The Project will provide a clean and cost-effective power supply resource to Seminole to meet the growing demands of Seminole's Member cooperative utilities and those utilities' member-consumers. In contrast to rate-based facilities, Calpine will bear all of the capital investment and operating risks associated with the Project, while Seminole, its Member cooperatives, and their member-consumers bear none.

The Project is the most cost-effective alternative available to Calpine and, because of its very high efficiency, the Project is expected to be economically viable for its entire useful life.

Q: Are you sponsoring any exhibits to your testimony?

A: Yes. I am sponsoring the following exhibits.

TRE-1. Calpine Construction Finance Company, L.P., Ownership Structure.

TRE-2. Calpine Corporation Generation Portfolio.

TRE-3. Order of the Federal Energy Regulatory Commission ("FERC") approving Calpine's market-based rate tariff.

TRE-4. Osprey Energy Center, Generating Alternatives Evaluated.

TRE-5. Osprey Energy Center, Cost-Effectiveness Analyses of Alternative Generation Technologies.

I am also sponsoring Figures II-1 and II-2, Tables II-1, II-13, II-19, II-20, and parts of Table II-2 (relating to the cost, economic life, and status of the Project) in Volume II of the Amended Exhibits filed in support of Calpine's Amended Joint Petition for determination of need for the Project. I am also sponsoring the text relating to the subject matter of these figures and tables contained within the Executive Summary, Introduction, and Sections II.A, II.C, II.D, II.E, II.F, and III.F of the Amended Exhibits. I am also sponsoring Appendix II-A to the Amended Exhibits.

CALPINE CONSTRUCTION FINANCE COMPANY, L.P., CALPINE EASTERN CORPORATION, AND CALPINE CORPORATION, INC.

Q: Please describe Calpine Construction Finance Company, L.P., and its business.

A: Calpine is a limited partnership organized and existing under the laws of the State of Delaware. Calpine is a wholly-owned subsidiary of Calpine Corporation, Inc. ("Calpine Corporation"), a Delaware corporation headquartered in San Jose, California. Exhibit _____ (TRE-1) illustrates the ownership structure relationships of Calpine, Calpine Eastern,

and Calpine Corporation.

Calpine is in the business of developing competitive wholesale power plants and acquiring electrical generating facilities for operation as competitive wholesale power plants. Calpine's basic business strategy is to provide clean, efficient, cost-effective wholesale power to other utilities. Competitive wholesale power plants are operated to sell power to other utilities at wholesale at voluntarily negotiated rates, with Calpine taking all financial and operating risk associated with the plants. With respect to the Osprey Project, Calpine, through its affiliate Calpine Energy Services, L.P. ("Calpine Energy Services"), has entered into the PPA pursuant to which Calpine will sell and Seminole will buy 350 MW of firm capacity from the Project from June 1, 2004 through May 22, 2020, subject to periodic "reopener" provisions in the PPA. Calpine will have a contractual arrangement with Calpine Energy Services pursuant to which Calpine Energy Services will provide fuel to the Project and will receive all of the electric capacity and energy from the Project, which it will then use to meet its contractual obligations to Seminole. Also pursuant to the PPA, Calpine has committed to Seminole and Seminole has the right to purchase up to all of the Project's capacity and all of the energy output of the Project for the term of the PPA; this includes Seminole's option to purchase the entire capacity of the Project from the Project's

commercial operation date (projected to be June 2003) through May 31, 2004, and Seminole's option to purchase the balance of the Project's capacity, i.e., the capacity above the 350 MW of capacity already committed to Seminole on a firm basis, from June 1, 2004 through May 22, 2020, to the extent that that additional capacity has not been firmly committed to other Florida load-serving utilities at the time that Seminole wishes to exercise these options.

Q: Please describe Calpine Corporation and its business.

A: Calpine Corporation is a leading independent power company engaged in the development, acquisition, ownership, and operation of power generation facilities and the sale of electricity predominantly in the United States. Calpine Corporation has experienced significant growth in all aspects of our business over the last five years. Calpine Corporation and its subsidiaries have ownership interests in 47 operating power plants with total generating capacity of 5,318.5 MW, in 18 power plants under construction with total generating capacity of 11,428.2 MW, and in 13 power plants under development with total generating capacity of 8,006 MW.

Calpine Corporation is financially strong and sound, with market capitalization near $10 billion and an investment grade bond rating.

Calpine Corporation's development of power generation projects involves numerous elements, including evaluating and selecting development opportunities, designing and engineering the projects, negotiating power sales agreements, acquiring necessary land rights, permits and fuel resources, obtaining financing, and managing construction.

In May 1999, Calpine Corporation completed the acquisitions from Pacific Gas & Electric Company of 14 geothermal power plans at The Geysers in Northern California, with a combined capacity of approximately 700 megawatts ("MW"). With these acquisitions Calpine Corporation now owns and operates 850 MW of geothermal generating capacity and is the nation's largest geothermal power producer.

Q: Please describe Calpine Eastern Corporation and the relationship between Calpine, Calpine Eastern, and Calpine Corporation.

A: Calpine Eastern Corporation is one of three regional Calpine Corporation subsidiaries that have responsibility for developing, acquiring, and operating the power plants owned by Calpine Corporation and its subsidiaries and for marketing the output of those plants. Calpine Eastern has responsibility for: (1) developing power plants all the way through the various permitting processes and construction phase and into

commercial operation; (2) overseeing the marketing of the power plants' output; and (3) operating, maintaining, and optimizing the power plants' operations over their lives. Calpine (i.e., Calpine Construction Finance Company, L.P.) provides the financing for the projects and owns them upon completion, and, as such, the development of the projects is completed in the name of Calpine. Calpine Corporation is the parent of both Calpine and Calpine Eastern.

Q: What existing power plants do Calpine Corporation and its subsidiaries have ownership interests in?

A: Calpine Corporation and its subsidiaries have ownership interests in 47 existing power generation facilities with a current aggregate capacity of approximately 5,318.5 MW, consisting of 28 gas-fired generation plants with a total capacity of 4,468.5 MW and 19 geothermal power generating facilities with a total capacity of 850 MW. Calpine Corporation's ownership interests, through various wholly-owned subsidiaries, in these plants total 4,421.6 MW, including 3,571.6 MW of gas-fired capacity and 850 MW of geothermal capacity. These existing power plants are located in California, New York, Texas, Florida, Massachusetts, New Jersey, Pennsylvania, Virginia, Illinois, Oklahoma and Washington. Exhibit _____ (TRE-2) presents Calpine

Corporation's generation portfolio.

Q: Do any subsidiaries or affiliates of Calpine Corporation presently own and operate any electrical power plants in Florida?

A: Yes. Calpine Corporation, through wholly owned subsidiaries, owns the entire ownership interest in the Auburndale Power Plant, a 150 MW cogeneration power plant located in Auburndale, Florida adjacent to the Osprey Project site. Most of the output from the Auburndale Power Plant is sold to Florida Power Corporation pursuant to a long-term negotiated contract, and most of the remainder is presently sold to Tampa Electric Company pursuant to a negotiated contract, with the balance sold on a daily basis into the wholesale market.

Q: What other projects do Calpine and its subsidiaries currently have under construction and development?

A: Calpine Corporation's subsidiaries, including Calpine Construction Finance Company, currently have eighteen gas-fired projects under construction with total capacity of 11,428.2 MW; Calpine Corporation's ultimate ownership share in these plants will be 9,891.3 MW. Upon completion of the projects under construction, Calpine Corporation will have interests in 65 power plants located in 18 states. Approximately 90 percent of

these plants' generating capacity will be gas-fired and approximately 10 percent will utilize geothermal technology. The power plants under construction are located in Alabama, Missouri, Texas, Oklahoma, California, Louisiana, Maine, Oregon, Arizona, Maine, and Pennsylvania.

Calpine Corporation's subsidiaries, including Calpine Construction Finance Company, have also formally announced plans to develop, and have commenced development of, an additional thirteen gas-fired power plants with a total capacity of 8,006 megawatts; Calpine Corporation's ultimate ownership share of these projects will be 7,484 megawatts. The power plants under development are located in California, Florida, Mississippi, Alabama, New York, Arizona, Ohio, Tennessee, Connecticut, and Alberta, Canada.

Q: Please describe the ownership status of Calpine Construction Finance Company, L.P.

A: Calpine is owned by its investors, and Calpine will own the power generation facilities, i.e., the Osprey Energy Center and the Blue Heron Energy Center identified in Calpine's 2000 Ten-Year Site Plan.

Q: Under what authority will Calpine sell the Osprey Project's output?

A: Calpine will market the Project's capacity and associated energy to other utilities and power marketers under negotiated arrangements entered into pursuant to Calpine's Rate Schedule No. 1 approved by the FERC. The FERC's order approving this market-based rate tariff is included as Exhibit _____ (TRE-3) to my testimony. That rate schedule, which applies to all sales by Calpine, provides that Calpine may enter into agreements with willing wholesale purchasers of energy and capacity provided by the Project.

Q: Has Calpine previously filed a ten-year site plan with the Commission?

A: Yes. Calpine filed a ten-year site plan in the spring of 2000.

Q: What experience do Calpine Corporation and its subsidiaries have in operating electrical power plants?

A: Calpine Corporation and its subsidiaries presently operate the vast majority of the 47 existing power plants in which Calpine Corporation holds ownership interests, including the 150 MW Auburndale Power Plant. By the end of 2002, Calpine Corporation's subsidiaries are projected to be operating more than 13,000 MW of generating capacity in which Calpine

Corporation will have an ownership interest. Such services include the operation of power plants, geothermal steam fields, wells and well pumps, gas fields, gathering systems, and gas pipelines. Calpine Corporation's subsidiaries also supervise maintenance, materials purchasing, and inventory control; manage cash flow; train staff; and prepare operating and maintenance manuals for each power generation facility that they operate. As a facility develops an operating history, Calpine Corporation's operation and management subsidiaries analyze the facility's operation and may modify or upgrade equipment or adjust operating procedures or maintenance measures to enhance the facility's reliability or profitability. These services are performed under the terms of operating and maintenance agreements pursuant to which Calpine Corporation's operation and maintenance subsidiaries are generally reimbursed for certain costs and paid an annual operating fee. Pursuant to the O&M agreements, these subsidiaries may also be paid an incentive fee based on the performance of each facility.

Q: Why is Calpine interested in building and operating the Osprey Energy Center in Florida?

A: Calpine views the construction and operation of the Osprey Energy Center as a mutually beneficial business opportunity for

Calpine and Seminole, Seminole's Member cooperatives, and those systems' member-consumers. Subject to the Project's output being contractually committed to Seminole and to other Peninsular Florida load-serving utilities, the Project will be beneficial to those utilities and their ultimate consumers.

According to the 2000 Regional Load & Resource Plan prepared by the Florida Reliability Coordinating Council and dated July 2000 ("FRCC 2000 Resource Plan"), Peninsular Florida needs more than 11,000 MW of new installed capacity in order to maintain winter reserve margins generally between 7% and 13% without exercising load management and interruptible resources from the winter of 2000-2001 through the winter of 2009-2010. Even with the exercise of load management and interruptible resources, Peninsular Florida needs more than 11,000 MW of new capacity, as forecast in the FRCC 2000 Resource Plan, to maintain planned reserve margins through the same period. Subject to the Project's output being contractually committed to Seminole and to other Peninsular Florida load-serving utilities, the Project will increase both summer and winter reserve margins for Peninsular Florida and will enhance Peninsular Florida's reliability. Assuming an average coincident peak demand of 3.5 to 5.0 kW per residential customer, the Project's capacity would be sufficient to maintain electric service to between 99,000 homes (at 5.0 kW per household, summer peak conditions) and 165,000 homes (at

3.5 kW per household, winter peak conditions) during an extreme weather event.

Q: Does Calpine expect to be represented on the Florida Reliability Coordinating Council?

A: Yes, Calpine expects to be represented on the FRCC with respect to our Osprey Project and Blue Heron Energy Center, another gas-fired combined cycle power plant that we described in our 2000 Ten-Year Site Plan.

THE OSPREY ENERGY CENTER

Q: Please describe the Osprey Energy Center.

A: The Osprey Energy Center is a natural gas-fired power plant utilizing advanced combustion turbine technology in combined cycle configuration with a heat recovery steam generator and an electric steam turbine generator. The Project's rated capacity at average ambient site conditions is 529 MW, based on expected manufacturers' guarantees. The Project's rated winter capacity is 578 MW and its rated summer capacity is 496 MW. Construction of the Project will be managed by Calpine Eastern Corporation or its affiliates or subsidiaries. The Project is scheduled to achieve commercial in-service status during the second quarter of 2003, and is projected to have a technical and economic life in excess of 30 years. Firm delivered gas

supply will be provided for the Project's operations pursuant to a contract between Gulfstream Natural Gas System and Calpine East Fuels, L.L.C., having an initial term of twenty years.

The Project will satisfy all applicable environmental permitting requirements. Gas-fired combined cycle technology is the most efficient and most environmentally benign electric generation technology currently available and feasible on a commercial basis. Analyses prepared by Slater Consulting and reported in detail in the testimony and exhibits of Kenneth J. Slater show that the Project's operations can be expected to have a substantial net beneficial effect on total emissions from power generation in Florida, reducing total combined emissions of sulfur dioxide and nitrogen oxides by between 8,000 and 23,000 tons per year.

Q: What is the approximate direct construction cost of the Osprey Project?

A: The estimated direct construction cost of the Project is $194.8 million. This equates to $357 per kW of capacity, calculated on the basis of the Project's rated capacity of 545 MW at ISO temperature and relative humidity conditions.

AMENDED DIRECT TESTIMONY OF TIMOTHY R. EVES

Q: Please give an overview of the financing plan for the Osprey Energy Center.

A: The Project will be constructed and brought into commercial service solely with funds provided by Calpine Corporation and its subsidiaries. Calpine Corporation will provide the equity. The debt will be provided by Calpine through a form of revolving credit, provided by several investment banks, used to simultaneously fund the debt portion of the construction and development costs of multiple Calpine projects.

Q: Please summarize the transmission arrangements that Calpine anticipates will be made for connecting the Osprey Project to the Peninsular Florida transmission grid and for delivering the Project's output to other Peninsular Florida utilities?

A: The Project will be interconnected to the Peninsular Florida transmission system at Tampa Electric Company's ("TECO") Recker Substation. Pursuant to TECO's transmission tariff, Calpine will obtain sufficient transmission capacity to permit the delivery of the Project's full output to other Peninsular Florida utilities on a firm basis. The actual transmission upgrades required have been determined in accordance with TECO's open access transmission tariff. Pursuant to Calpine's request and TECO's tariff, TECO issued the Transmission Service Request Facilities Study report on August 31, 2000. The report

estimated the cost to interconnect the Osprey Project to TECO's Recker Substation at $2.4 million. In addition, the cost of the network upgrades required to provide firm transmission service was estimated at $11.5 million.

Q: What is the status of the Osprey Project in the development process?

A: Preliminary engineering for the Osprey Project is complete, and detailed design engineering will begin in March 2001. Calpine has filed the site certification application for the Osprey Project, which was deemed complete by the Florida Department of Environmental Protection ("DEP") on April 7, 2000. On December 11, 2000, DEP issued notice of its determination that the Osprey site certification application was sufficient. The draft air permit is complete, the Project site has been annexed into the City of Auburndale, and all work relative to land use approvals is complete.

Calpine has secured, by the payment of substantial deposits, the rights to a significant number of combustion turbine generators for delivery between the present and 2004. As permitting of the Osprey Project goes forward and the Project's construction timetable becomes firmly established, two of these already-secured CTGs will be designated for use in the Osprey Project.

Our affiliate, Calpine East Fuels, L.L.C., has entered into a Precedent Agreement with Gulfstream Natural Gas System, L.L.C., for firm gas transportation service for the Project. With regard to transmission, TECO has completed the transmission interconnection study and its Transmission Service Request Facilities Study report. We have formally requested the reservation of sufficient capacity on TECO's transmission system, and have submitted the requisite deposit, to accommodate power deliveries from the Project to Seminole and to other Peninsular Florida utilities on a firm basis. (In the event that Seminole does not elect to purchase all of the Project's output at a given point in time, Calpine would endeavor to market any available power to other Peninsular Florida load-serving utilities pursuant to appropriate, cost-effective contracts.)

Q: **When is the Osprey Project expected to achieve commercial in-service status?**

A: Based on the present schedule, Calpine expects to bring the Osprey Project into commercial operation by June 1, 2003.

Q: **Please introduce Calpine's other witnesses and the subject matter of their testimony and exhibits.**

A: Detailed technical information regarding the Osprey Energy

Center is presented in the testimony and exhibits of Ted S. Baldwin, whose testimony describes the engineering aspects of the Project; Richard A. Zwolak, AICP, whose testimony addresses environmental and permitting issues; Michael D. Petit, who addresses fuel transportation and fuel supply issues; Kenneth J. Slater, who addresses the potential impacts of the Osprey Project's operations on Peninsular Florida power supply costs, fuel use for power generation, and environmental emissions associated with power generation; and Michel P. Armand, P.E., who addresses transmission issues.

Q: What other companies and entities are assisting in developing and permitting the Osprey Project?

A: Golder Associates is providing environmental analysis and permitting support for the Project. Navigant Consulting has provided certain transmission load flow studies in support of Calpine's site certification application for the Project. TECO has provided interconnection studies and transmission system impact studies and will, pursuant to its FERC-approved transmission tariff, provide transmission service to accommodate delivery of the Project's output to Seminole and to the other Peninsular Florida utilities that purchase power from the Project. Gulfstream Natural Gas System will provide gas transportation service to the Project. Slater Consulting and

R.W. Beck and Associates have provided assistance with respect to economic evaluations of the Project in support of the Joint Petition.

GENERATING AND NON-GENERATING ALTERNATIVES CONSIDERED

Q: What generating alternatives did Calpine consider to the particular configuration that was actually selected for the Osprey Project?

A: The major available generating alternatives that were examined and evaluated in arriving at the decision to use the selected generating technology for the Osprey Energy Center were gas-fired and oil-fired combustion turbines, gas-fired and oil-fired combined cycle units, gas-fired steam generation units, conventional pulverized coal steam units, nuclear steam units, renewable energy technology, and integrated coal gasification combined cycle units. Exhibit _____ (TRE-4) lists the generating alternatives evaluated, and Exhibit _____ (TRE-5) summarizes our cost-effectiveness evaluation of the alternative technologies.

Q: Why did Calpine select natural gas-fired combined cycle technology for the Osprey Energy Center?

A: Exhibit _____ (TRE-5) shows that gas-fired combined cycle technology is expected to have the lowest levelized life-cycle

cost in either intermediate load operation or base load operation. Projections prepared for Calpine indicate that the Osprey Project will, subject to the Project's output being contractually committed to Seminole and to other Peninsular Florida load-serving utilities, operate as a base load unit, with annual capacity factors in the range of 86 to 93 percent, dependent on the routine maintenance planned for each respective year. These evaluations clearly indicate that the best choice for Calpine, considering economics and cost-effectiveness, is gas-fired combined cycle capacity.

The selected gas-fired combined cycle technology also exhibits favorable reliability, long-term flexibility, environmental, and strategic characteristics. This technology is proven and extremely reliable, with a forced outage rate of approximately 2 percent. The technology also has great flexibility for both intermediate and base load operation; our design choice allowing for duct-firing and power augmentation also allows for additional flexibility of operation to meet extreme demand conditions in Peninsular Florida. As stated above and in Mr. Slater's testimony, the Project is expected to have a net beneficial impact on emissions from power generation for Peninsular Florida, reducing total sulfur dioxide and nitrogen oxides emissions by approximately 8,000 to 23,000 tons per year. Additionally, the chosen technology is favorable considering strategic factors, both from Calpine's and

Seminole's perspectives. The Project will be fueled by domestically produced natural gas rather than by imported fuel that may be subject to interruption due to political or other events. The Project has a low installed cost and a highly efficient heat rate, assuring its long-term economic viability. The Project's gas-fired combined cycle technology is exceptionally clean and minimizes airborne emissions. Since the Project will use clean natural gas as its fuel, there is substantially less risk (than with older, less efficient, and more polluting power plants) that the Project will be adversely affected by future changes in environmental regulations.

Subject to the Project's output being contractually committed to Seminole and to other Peninsular Florida load-serving utilities, the Project will also conserve primary energy consumed for electricity production in Florida by displacing generation from less efficient, and less cost-effective, oil-fired, natural gas-fired, and coal-fired units. In so doing, the Project will enhance both the overall efficiency of electricity production and the overall efficiency of natural gas use, as well as reduce the consumption of petroleum fuels for electricity generation in Florida, thereby reducing environmental emissions.

The desirability of Calpine's technology choice is further supported by the fact that other Florida utilities are planning to add capacity of similar technology and design, and by the

fact that the type of power plant proposed by Calpine is the technology of choice for the large majority of new power plant capacity planned in the United States.

Q: What, if any, non-generating alternatives did Calpine consider in the processes that led it to proceed with the Osprey Project?

A: There are no viable non-generating alternatives to the Osprey Project. Calpine is in the business of providing efficient, cost-effective wholesale power to other utilities. Based on my experience, as a wholesale-only power supplier, Calpine does not engage in end-use conservation programs and is not required to have conservation goals pursuant to the Florida Energy Efficiency and Conservation Act. Accordingly, Calpine did not consider non-generating alternatives to constructing and operating the Osprey Project.

Q: Notwithstanding your position that Calpine does not engage in direct end-use energy conservation programs, will the Osprey Energy Center have any energy conservation effects?

A: Yes. The Project, like other gas-fired combined cycle units, provides energy efficiency benefits by using less primary fuel to produce a given quantity of electricity and provides environmental benefits in the form of reduced emissions that

would otherwise occur if oil-fired or gas-fired steam turbine plants, or other fossil fuel baseload or peaking units, were dispatched instead of the Project. Accordingly, subject to the Project's output being contractually committed to Seminole and to other Peninsular Florida load-serving utilities, the Project promotes and is specifically consistent with the Florida Legislature's declared goals of enhancing the overall efficiency and cost-effectiveness of electricity production and natural gas use, and of conserving expensive resources, particularly petroleum fuels. The Project is also expected to provide environmental benefits in the form of reduced sulfur dioxide and nitrogen oxides emissions that would otherwise occur if oil-fired or gas-fired steam turbine plants, or other fossil fuel-fired baseload or peaking units, were dispatched instead of the Project.

THE SEMINOLE-CALPINE POWER PURCHASE AGREEMENT

Q: What is the status of Calpine's and Seminole's efforts to reach final contractual arrangements for the purchase and sale of the Osprey Project's output?

A: Calpine Energy Services, an affiliate of Calpine, and Seminole executed the PPA on December 14, 2000. The PPA sets forth all of the detailed commercial principles -- e.g., pricing, duration, and other key terms and conditions -- for the

Seminole-Calpine power purchase and sale arrangement.

Q: Please describe the basic terms of the PPA.

A: The PPA provides for Calpine to sell and for Seminole to purchase 350 MW of firm capacity and associated energy from June 1, 2004 through May 22, 2020, subject to periodic contractual "reopeners." The "reopener" provisions are triggered at five-year intervals, and if neither Seminole nor Calpine affirmatively terminates the PPA, then it will continue in full force and effect. Additionally, Seminole has the option to purchase the entire capacity of the Osprey Project from the Project's commercial in-service date (expected June 2003) through May 31, 2004, to the extent that this capacity has not been firmly committed to other Florida load-serving utilities at the time that Seminole wishes to exercise this option. In addition, beginning on June 1, 2004, Seminole has the option to purchase the entire remaining capacity of the Project, i.e., the Project's capacity above the 350 MW already committed to Seminole on a firm basis, to the extent that this additional capacity has not been firmly committed to other Florida load-serving utilities. Throughout the PPA's term, Seminole has the right, pursuant to notice and pricing provisions set forth in the PPA, to purchase all of the Project's energy output associated with the amounts of firm

capacity that Seminole is purchasing at any time.

CALPINE'S USE OF THE OSPREY ENERGY CENTER

Q: For what purposes will Calpine use the Osprey Energy Center?

A: Calpine will use the Osprey Project primarily to fulfill its contractual obligations to Seminole. Calpine may also use the Project to serve the power supply needs of other Peninsular Florida load-serving utilities that elect to contract with Calpine for the Project's output.

Q: Please give an overview of the projected operations of the Osprey Energy Center.

A: Mr. Kenneth J. Slater's analyses of the Florida bulk power supply market and of the Project's operating economics yield projections that the Project, with an availability factor of greater than 94 percent, would be expected to operate between 7,500 and 8,500 hours per year, when operated on an economic dispatch basis within the Peninsular Florida power supply system and subject to the Project's output being contractually committed to Seminole and to other Peninsular Florida load-serving utilities. We anticipate that the Project will provide approximately 578 MW (winter) and 496 MW (summer) of capacity, and between 4,000,000 MWH and 4,400,000 MWH per year of cost-effective, environmentally beneficial electrical energy, on a

wholesale basis, to Seminole and to other Peninsular Florida utilities that elect to contract for the Project's output.

Q: How likely is it that the Project would make sales of capacity or energy or both to utilities outside Florida, under any scenario?

A: It is unlikely that any significant amount of the Project's output would be sold outside Peninsular Florida under any scenario. This is a function of several factors, including relatively low generation costs in the Southeastern Electric Reliability Council ("SERC") region as compared to those within Peninsular Florida, recent power shortages and projected tight reserves in Peninsular Florida, and limited transmission export capacity from Florida into the SERC region. Of course, this is why we are seeking the Commission's determination of need that will enable us to build the Osprey Energy Center in Peninsular Florida, and why the transmission interconnection facilities are being designed to accommodate deliveries of power from the Project to utilities located within the State of Florida. This is also why Calpine asked Navigant Consulting and TECO to perform transmission studies for power deliveries exclusively to load-serving utilities in Peninsular Florida. No out-of-state export studies were contemplated.

Q: Does Calpine either plan to sell electricity at retail in Florida or anticipate making retail power sales in Florida?

A: No. Selling at retail is not a part of Calpine's development marketing, or strategic plans.

Q: What, if any, additional benefits could the Osprey Energy Center provide to Florida, its citizens, and its electric ratepayers?

A: In addition to fairly dramatic power supply cost savings, the Project can, subject to the Project's output being contractually committed to Seminole and to other Peninsular Florida load-serving utilities, provide enhanced reliability of electric supply, both through additional generation capacity and through fuel diversity. This results in reduced losses to the people and businesses of Florida from service interruptions. The Project can also be expected to enhance environmental quality; stimulate economic development through lower overall electricity costs, increased employment, and increased local government tax revenues; and transfer the financial risks associated with owning and operating an electrical generation facility away from electric ratepayers to Calpine.

Q: What, if any, adverse effects would occur if the Osprey Project were not brought into service, or was delayed in being brought into service, as proposed by Seminole and Calpine?

A: Seminole, other Peninsular Florida load-serving utilities that would choose to contract for the Project's output, and Florida would lose all of the benefits that the Project would otherwise provide. Specifically, Seminole, Seminole's Member cooperative utilities, those utilities' member-consumers, other Florida load-serving utilities who would elect to contract with Calpine for the Project's output, and those utilities' retail customers would lose the following:

1. More than 4,000,000 MWH per year of clean, efficient, cost-effective generation;
2. The substantial cost savings that would result as the Project's operation displaces generation from more costly power plants, on the order of $150 million per year;
3. The additional economic value provided by the Project through (a) lower costs of ancillary services, (b) reduced losses of economic productivity due to service interruptions, and (c) enhanced economic development;
4. The environmental emissions reductions that would result as the Project displaces generation from less efficient generation resources;
5. The risk transference benefits of having Calpine own and

operate the Project outside any retail-serving utility's rate base; and

6. The economic development stimulation benefits of the Project, including lower overall electricity costs, increased employment, and enhanced local government tax revenues.

COST-EFFECTIVENESS AND ECONOMIC VIABILITY

Q: Is the Osprey Project the most cost-effective alternative available to Calpine to meet its projected needs for serving its anticipated wholesale customers?

A: Yes. As shown in Exhibit _____ (TRE-5), gas-fired combined cycle generation capacity has the lowest expected total cost of all technologies evaluated for both intermediate and base load duty. Given our projections that the Osprey Project will operate as a base load unit, the gas-fired combined cycle technology that Calpine has chosen is the most cost-effective alternative available.

Q: How were these alternatives evaluated?

A: These alternatives were evaluated by comparing the estimated levelized life-cycle operating costs of the different technologies in different modes of operation, i.e., operated in peak, intermediate, and base load modes of operation. The

analyses, which are summarized in Exhibit _____ (TRE-5), show that the lowest levelized costs for any technology for intermediate and base load applications are for the gas-fired combined cycle technology that Calpine has selected for the Osprey Energy Center.

Q: Do you believe that the Osprey Project will be economically viable? Why or why not?

A: Yes, I believe that the Osprey Project will be economically and financially viable over its entire useful life. Calpine, not Florida electric ratepayers, bears the investment risk associated with the Project, and as such, Calpine will have very strong incentives to maintain and operate the Project as efficiently and economically as possible. As noted above, subject to the Project's output being contractually committed to Seminole and to other Peninsular Florida load-serving utilities, the Project is expected to operate, on an economic dispatch basis, between 7,500 and 8,500 hours per year, with a very high availability factor over the life of the Project.

Also, the gas-fired combined cycle technology that Calpine has selected for the Project is the most efficient and the most economical generation technology currently available on a commercial basis. Indeed, it is the technology of choice throughout the U.S. electric industry today.

Q: What, if anything, could happen that would render the Osprey Project no longer economically viable?

A: Power plant technology, as all technology, is constantly advancing and being introduced to the market. At some point in time, new technology will be implemented on a scale of sufficient magnitude to render today's current best technology obsolete. This natural obsolescence in generation technology is traditionally thirty years in the U.S. power market. Calpine expects that the economic life of the Osprey Project would be in line with this natural obsolescence cycle.

From a more short-term perspective, it is difficult to envision a circumstance or situation that would render the Project not economically viable. However, the Commission should keep in mind that in the event that such an unforeseen event may occur, Calpine will bear the capital and investment risk of the Project and that Florida electric customers will not be exposed to any stranded cost risk or other risks associated with the Project, as they would be if the same amount of capacity had been built and included in a traditional regulated utility's rate base.

AMENDED DIRECT TESTIMONY OF TIMOTHY R. EVES

REQUESTED COMMISSION ACTION

Q: What action are Seminole and Calpine asking the Commission to take in this proceeding?

A: Seminole and Calpine are petitioning the Commission to issue its order granting an affirmative determination of need for the Osprey Energy Center. The Osprey Project is needed to meet Seminole's needs for system reliability and integrity and for adequate, cost-effective electricity, and, as described in my testimony, the Project is likewise consistent with Peninsular Florida's needs for clean, reliable, cost-effective power supplies. The Osprey Project will provide significant and substantial economic, efficiency, environmental, and strategic benefits to Seminole, Seminole's Member cooperatives, those utilities' member-consumers, and to the other Peninsular Florida utilities that elect to contract for the Project's output, and accordingly, the Commission should grant the requested determination of need.

Q: Does this conclude your direct testimony?

A: Yes, it does.

MR. WRIGHT: Ms. Kiesling will handle Mr. Baldwin's testimony who is next in our order of witnesses. I'm sorry, Mr. LaVia. Sorry.

MR. LaVIA: The next witness is Ted S. Baldwin. Mr. Baldwin also has several minor changes to his prefiled testimony. I will provide the court reporter with a copy of these to be inserted.

It's at Page 5, Line 13; you add the word "amended" before the word "exhibit." And on Page 5, Line 14, add the word "amended" before the words "joint exhibit" -- I mean, "joint petition."

And with those changes, I would move that Mr. Baldwin's testimony consisting of ten pages be entered into the record as though read.

CHAIRMAN JACOBS: Without objection, show Mr. Baldwin's testimony entered -- as amended entered into the record as though read.

MR. LaVIA: Mr. Baldwin also had several exhibits labeled TSB-1 through TSB-12. I request that those exhibits be given a composite number.

CHAIRMAN JACOBS: That is Composite Exhibit 7.

(Exhibit 7 marked for identification.)

MR. LaVIA: And I move that Composite Exhibit 7 be entered into the record.

CHAIRMAN JACOBS: Without objection, show

Exhibit 7 admitted.

(Exhibit 7 admitted into the record.)

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

IN RE: JOINT PETITION FOR DETERMINATION OF NEED FOR THE OSPREY ENERGY CENTER IN POLK COUNTY BY SEMINOLE ELECTRIC COOPERATIVE, INC. AND CALPINE CONSTRUCTION FINANCE COMPANY, L.P.

DIRECT TESTIMONY OF TED S. BALDWIN, P.E.

Q: Please state your name and business address.

A: My name is Ted S. Baldwin, and my business address is Two Urban Center, 4890 West Kennedy Boulevard, Suite 600, Tampa, Florida, 33609.

Q: Where are you employed and in what position?

A: I am employed by Calpine Eastern Corporation as a Regional Engineer.

Q: Please describe your duties with Calpine Corporation.

A: I am responsible for the technical aspects related to the development of power plant projects. These responsibilities include selection of the plant configuration, the preliminary plant layout, calculation of plant performance, and oversight of the environmental permitting process.

QUALIFICATIONS AND EXPERIENCE

Q: Please summarize your educational background and experience.

A: I received a Bachelor of Science degree in Mechanical Engineering from the University of Texas in Austin in 1981.

I also received a Masters of Science degree in Mechanical Engineering from the University of Michigan in 1982.

Q: Please summarize your experience in power plant design, engineering, construction, operations, permitting, and licensing.

A: I have approximately 18 years of experience in the electric power industry, working as an equipment engineer, analytical engineer, boiler engineer, thermal cycle systems engineer, engineering group manager, director of engineering and now Regional Engineer for Calpine Eastern Corporation. In those positions, I have gained a wide range of experience in electrical power plant design, engineering, construction, operations, permitting and licensing. As part of my job, I have assisted in the design of more than a dozen gas-fired electrical generating plants. Exhibit _____ (TSB-1) is my current resume'.

Q: Are you a member of any professional organizations?

A: I have been a member of the American Society of Mechanical Engineers for the past twelve years.

DIRECT TESTIMONY OF TED S. BALDWIN

SUMMARY AND PURPOSE OF TESTIMONY

Q: What is the purpose of your testimony?

A: I am testifying on behalf of Calpine Construction Finance Company, L.P. ("Calpine"), one of the joint applicants for the Commission's determination of need for the Osprey Energy Center (the "Osprey Project" or "Project"). I will describe the main design features of the Project, as well as the Project's operational reliability and flexibility. I also will describe the performance characteristics and environmental profile of the Project, and present the engineering, procurement, and construction schedule for the Project.

Q: What are your responsibilities with respect to the Osprey Project?

A: In my position as Regional Engineer for Calpine Eastern Corporation, I oversee the preliminary engineering effort and regulatory support activities associated with the Project.

Q: Please summarize the key features of the Project.

A: The Osprey Project is a state-of-the-art natural gas-fired combined cycle generation facility. The plant will have approximately 529 megawatts ("MW") of net generating capacity based on anticipated manufacturer's guarantees at average

ambient site conditions. The Osprey Project's rated winter capacity will be approximately 578 MW and its rated summer capacity will be approximately 496 MW. The Osprey Project will have a high thermal efficiency with a projected heat rate of approximately 6800 British thermal units ("Btu") per kilowatt-hour ("kWh"), based on the Higher Heating Value ("HHV") of natural gas at ambient site conditions. The Project will utilize state-of-the-art dry low-NO_x combustion technology to minimize emissions of nitrogen oxides (NO_x). In addition, a selective catalytic reduction ("SCR") system will be used to further reduce NO_x emissions.

The Osprey Project will be a highly reliable power generation facility, with an estimated annual equivalent availability factor of approximately 94.5 percent. The operations and maintenance plan for the Project will be in accordance with the equipment manufacturer's recommended maintenance schedules.

Q: Are you sponsoring any exhibits to your testimony?

A: Yes. I am sponsoring the following exhibits.

(TSB-1): Current resume' of Ted S. Baldwin.

(TSB-2): Osprey Energy Center, Project Profile.

(TSB-3): Osprey Energy Center, Site Plan.

(TSB-4): Osprey Energy Center, Proposed Plot Plan.

(TSB-5): Osprey Energy Center, Computer-Generated Perspective Rendition.

(TSB-6): Estimated Plant Performance and Emissions.

(TSB-7): Osprey Energy Center, Cycle Schematic Diagram.

(TSB-8): Summary of the Design Basis for the Project.

(TSB-9): Osprey Energy Center, Electrical One-Line Diagram.

(TSB-10): Preliminary Average Annual Water Balance for the Project.

(TSB-11): Preliminary Peak Month Daily Water Balance for the Project.

(TSB-12): EPC Schedule for the Project.

I am also sponsoring Tables II-2 and II-3 and Figures II-3 through II-10 and II-15 in Volume II of the Amended Exhibits to the Amended Joint Petition for Determination of Need filed with the Commission concurrently with this testimony, and the text that accompanies those tables and figures.

PROJECT DESCRIPTION AND ENGINEERING DESIGN

Q: Please describe the Osprey Project.

A: The Osprey Project is a state-of-the-art natural gas-fired combined cycle generation facility. The plant consists of two combustion turbine generators ("CTGs"), two heat recovery steam generators ("HRSGs") and one steam turbine generator ("STG"). The Project will use wet cooling towers to condense

steam back to water for reuse in the HRSGs and STG. The plant will have approximately 529 MW of net generating capacity (based on anticipated manufacturer's guarantee) at average ambient site conditions. The average ambient conditions at the Project site are 74°F. and 80% relative humidity. A general profile of the Project is shown in Exhibit _____ (TSB-2).

The Project will also have a net output capability, without duct-firing or power augmentation, of 545 MW (nominal) at ISO temperature (59°F.) and relative humidity (60%) conditions.

The Project will utilize dry low-NO_x combustion technology to minimize emissions of NO_x. In addition, an SCR system will be used to further reduce NO_x emissions.

Q: Please describe the SCR system that will be used to reduce the Project's NO_x emissions.

A: The SCR system for the Project will consist of a catalyst and an ammonia injection grid located within the HRSG. When NO_x is exposed to ammonia in the presence of the catalyst, the NO_x is converted to elemental nitrogen and oxygen.

Q: Please give a brief description of the site for the Osprey Project.

A: The site for the Project consists of approximately 19.5 acres, situated approximately 1.5 miles southwest of downtown Auburndale, in Polk County. The site is a non-producing citrus grove and is currently unused. A detailed description of the Project site is presented in the testimony of Mr. Richard Zwolak, AICP, in support of the Project, and in the exhibits that he is sponsoring in support of the Project.

Q: Please summarize the general arrangement and layout of the Project on the site.

A: The general arrangement of the Project is shown on the Site Plan in Exhibit ____ (TSB-3). Exhibit ____ (TSB-4) shows a detailed layout of the main Project structures on the site, and Exhibit ____ (TSB-5) presents a computer-generated perspective rendition of the Project.

Q: Please describe the generating technology of the Osprey Project.

A: The Osprey Energy Center will have an expected net output capability, without duct-firing or power augmentation, of approximately 529 MW based on the anticipated manufacturer's guarantee at average ambient site conditions. As I previously noted, the power block will consist of two advanced technology Siemens-Westinghouse Model 501F CTGs, two matched HRSGs that

include duct-firing capability, and one STG, which has the ability to utilize steam for power augmentation to increase output from the CTGs.

Q: Please define the terms "duct-firing" and "power augmentation."

A: Duct-firing is a process whereby additional gas burners are placed within the HRSGs to increase the gas temperature and generate more steam, thus increasing power generation from the STG. Power augmentation refers to a process in which steam from the HRSGs is injected into the gas turbines for the purpose of increasing mass flow through the CTGs, thereby increasing the electrical power output from the CTGs.

Q: What will the peak generating capacity of the Osprey Project be?

A: Without duct-firing and power augmentation, the Osprey Project's rated winter capacity will be approximately 578 MW and its rated summer capacity will be approximately 496 MW. With duct-firing and power augmentation, the Project's winter capacity will be approximately 666 MW and its summer capacity will be approximately 575 MW.

Q: What are the Osprey Project's expected heat rate and thermal

efficiency?

A: The Project is projected to have a heat rate of approximately 6,800 Btu per kWh, based on the HHV of natural gas at average ambient site conditions, reflecting a net thermal efficiency of approximately 50.2 percent.

Q: Please describe the performance characteristics of the Osprey Project.

A: The performance characteristics of the generating facility are summarized in the Plant Performance Table, Exhibit _____ (TSB-6). This table presents facility generating output and emissions data for the Project at various expected ambient site conditions, at full and part load operation.

Q: Please describe the power generation cycle for the Project.

A: The power generation cycle of the Project is depicted on the overall cycle schematic diagram for the Project on Exhibit ____ (TSB-7). In brief, natural gas is burned in the CTG where the expanding combustion gases turn the CTG's shaft to produce electricity; and exhaust gases exit the CTG and enter the HRSG at approximately 1100°F. Two HRSGs, one per CTG, are used to recover heat from the exhaust gases by producing steam at three different pressure levels. The steam produced in the HRSGs is then expanded through a single STG to produce

additional electrical power. The successive uses of thermal energy, first in the CTGs and second in the HRSGs and STG, to produce electricity is why this generating technology is called "combined cycle."

Q: Please describe the design basis for the Project.

A: The design basis for the Project is summarized in Exhibit ____ (TSB-8). The description contained in Exhibit _____ (TSB-8) is accurate and is hereby incorporated by reference into my testimony.

Q: Please describe the basic electrical characteristics of the Osprey Project.

A: The basic electrical characteristics of the Project are set forth in the Project's electrical one-line diagram, Exhibit _____, (TSB-9). In brief, electrical power is produced at 18 kilovolts (kV) in the CTGs and 16 kV in the STG. Each generator is connected to a transformer which steps up the electrical voltage to 230 kV, which is the operating voltage of the Tampa Electric Company ("TECO") transmission system in the vicinity of the Osprey Project. Electricity is delivered to the transmission system through the Recker high voltage substation owned by TECO. This substation is an existing substation that will be expanded to accommodate the

interconnection of the Project.

Q: Please describe the projected fuel use for the Project.

A: At full load, the Project will use approximately 86 million standard cubic feet of natural gas per day at annual average site conditions.

Q: Please summarize the start-up and emergency power supplies for the Project.

A: The Project will obtain station service and start-up power from Tampa Electric Company in order to maintain normal plant auxiliary loads during periods in which the facility is off-line and to accelerate the CTGs to a self-sustaining operating speed during start-up. In the event of a loss of the transmission system, emergency power for critical components necessary for safe shutdown of the plant will be provided from a stationary battery system. The plant is also equipped with emergency diesel generators to keep the battery system charged and to provide supplemental power to the plant for other loads that are not critical. The plant's battery system and emergency diesel generators will be capable of providing sufficient power for safe shutdown of each unit and to keep certain prioritized auxiliaries operating, but will not be capable of restarting the units.

Q: Please give a brief description of the control systems for the Osprey Project.

A: The Project is controlled by a distributed control system ("DCS"). A DCS is a fiber optic cable network that runs throughout the plant that picks up control input signals such as pressure, temperature, or flow, delivers the signals to the central control computer and then distributes control output signals such as the opening or closing of a valve or the starting and stopping of a motor. The control system is designed to provide full automation of the unit. The gas turbine sequencer allows the operator to start and stop the gas turbines automatically. Operator stations are designed to allow a graphical, intuitive navigation through the plant processes from a central control room.

OPERATIONAL RELIABILITY

Q: Please discuss the operational reliability of the Osprey Project.

A: The Osprey Project will have a high degree of reliability similar to other state-of-the-art combined cycle generating facilities.

Reliability is often measured in terms of the percentage of hours a unit is available to produce electricity within a specified period of time, usually one year. The Osprey

Project is expected to achieve an annual equivalent availability factor of 94.5 percent. This factor will vary depending on the planned maintenance activities in a given year, the forced outage rate, the need to take the CTGs off-line to clean compressor blades, and the need to perform occasional minor maintenance.

Q: What are the expected forced outage and maintenance outage rates for the Osprey Project?

A: The forced outage rate for the plant is expected to average approximately two percent per year.

The maintenance (also known as planned) outage rate for the plant is expected to average 3.5 percent per year, but the actual rate will vary from year to year in accordance with the vendor's recommended maintenance cycle for the CTGs. The Siemens-Westinghouse Model 501F turbines have an 8,000 hour maintenance cycle. A minor inspection, referred to as a combustor inspection, will be conducted at the end of each 8,000 hours of operation. A slightly more detailed inspection, referred to as a hot gas inspection, along with the combustor inspection, will be conducted at the end of 24,000 hours of operation. A major inspection will be conducted at 48,000 hours of operation. This cycle will be repeated for the life of the equipment. Combustor and hot gas

inspections take approximately 7 days and 14 days respectively, and a major inspection takes approximately 21 days.

Q: Who will operate the Osprey Project?

A: The Osprey Project will be operated either by an operating subsidiary of Calpine or by a subcontractor engaged for that purpose by Calpine.

Q: Please describe any special design features or other considerations that are relevant to the Osprey Project's operational reliability.

A: The Osprey Project will be constructed utilizing the most advanced CTG design with extensive operating experience. The building configuration and balance of plant equipment will be typical of designs used throughout the industry for combined cycle plants. Use of such standard equipment offers the highest possible reliability.

ENVIRONMENTAL PROFILE

Q: Please summarize the environmental profile of the Osprey Project.

A: The Project will be fueled by natural gas. The Project has been designed with careful consideration of environmental

issues and will be one of the cleanest power plants in Florida and in the United States. It will utilize dry low-NO_x combustion technology and an SCR system to minimize NO_x emissions. The Project's emissions of critical pollutants are projected to be approximately as follows (based on an average ambient conditions of 74°F., 80% relative humidity, with both CTGs operating at 100% load, and without power augmentation or duct-firing):

Sulfur Dioxide: negligible, less than 19.8 lbs. per hour (less than 87 tons per year)

Nitrogen Oxides: 3.5 parts per million dry volume at 15% oxygen, or 46.3 lbs. per hour (203 tons per year)

Volatile Organic Compounds: 10.4 lbs. per hour (46 tons per year)

Particulate Matter: 40.1 lbs. per hour (176 tons per year) as PM_{10}

Carbon Monoxide: 10 parts per million dry volume at 15% oxygen, 82 lbs. per hour (359 tons per year)

Operation of the Project is likely to result in measurable reductions in emissions of SO_2, CO_2, NO_x, and other air pollutants in Peninsular Florida, due to the Project's displacement of generation from: (a) units that burn fuels

that produce more pollution than is produced by the natural gas fuel used in the Project, (b) less efficient units, and (c) units that do not include the types of pollution controls being utilized by the Project.

Q: Please summarize the projected water requirements and water supply plan for the Osprey Energy Center Project.

A: The Project will require approximately 3.55 million gallons per day ("MGD") of water calculated on an annual average basis. At peak conditions with power augmentation and duct-firing for six hours per day, the Project will require approximately 4.79 MGD of water.

The Osprey Project will utilize a combination of reclaimed water and ground water for its process and makeup water supply. Reclaimed water will be supplied from the City of Auburndale's Allred Wastewater Treatment Plant. The Project will require the construction of reclaimed water pipelines to connect with the City of Auburndale's wastewater treatment facility. The pipelines to the Allred wastewater treatment facilities will be approximately one mile in length and will be constructed in existing public rights-of-way. Additionally, other minor pipeline modifications will be made to enhance discharge capability. The reclaimed water supply and return pipelines to Allred will run along the north Recker

Highway right-of-way to the Osprey Project site boundary. The City of Auburndale will obtain the necessary permits for the water and wastewater pipelines. The remainder of the Osprey Project's water supply will be provided by new on-site wells withdrawing water from the Upper Floridan aquifer.

The preliminary water balance for the Project at average conditions is shown in Exhibit _____ (TSB-10), and the preliminary water balance for peak monthly conditions is shown in Exhibit _____ (TSB-11).

PROJECT SCHEDULE

Q: Who will be the engineering, procurement, and construction contractor for the Project?

A: Calpine Corporation's construction management group will manage the engineering and construction of the Osprey Project. Calpine Corporation's construction management group will specify and procure the major equipment for the Osprey Project including the CTGs, HRSGs, and the STG. Parsons Energy and Chemical Group will perform the detailed engineering for the Project. Calpine Corporation's construction management group will competitively bid the construction of the Osprey Project to qualified general contractors with experience in the power industry, such as H.B. Zachary or The Industrial Company.

Q: Please describe the engineering, procurement, and construction schedule for the Project.

A: The engineering, procurement, and construction schedule (the "EPC schedule"), Exhibit ____ (TSB-12), provides for the Project to be designed and brought into commercial service -- i.e., "on-line" -- by the second quarter of 2003. Preliminary engineering design has already begun and detailed engineering will begin in February 2001. The general contractor for construction will be selected in the first quarter of 2001. The Project schedule provides for approximately 24 months from Project release to commercial operation.

Q: What is the current status of the engineering design work for the Osprey Project?

A: Conceptual engineering is complete. A site plan, plot plan, process flow diagram, electrical one-line diagram, water balance, capital cost estimate, and operation and maintenance estimate are also complete.

Q: Does this conclude your direct testimony?

A: Yes, it does.

(Transcript continues in sequence in Volume 2.)

STATE OF FLORIDA)
: CERTIFICATE OF REPORTER
COUNTY OF LEON)

I, TRICIA DeMARTE, Official Commission Reporter, do hereby certify that the Hearing in Docket No. 001748-EC was heard by the Florida Public Service Commission at the time and place herein stated.

IT IS FURTHER CERTIFIED that I stenographically reported the said proceedings; that the same has been transcribed under my direct supervision; and that this transcript, consisting of 123 pages, Volume 1 constitutes a true transcription of my notes of said proceedings.

I FURTHER CERTIFY that I am not a relative, employee, attorney or counsel of any of the parties, nor am I a relative or employee of any of the parties' attorneys or counsel connected with the action, nor am I financially interested in the action.

DATED THIS 14TH DAY OF FEBRUARY, 2001.

Tricia DeMarte

TRICIA DeMARTE
FPSC Official Commission Reporter
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