

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In Re: Joint Petition for)
Determination of Need for the) DOCKET NO. 001748-EC
Osprey Energy Center in)
Polk County by Seminole) FILED: JANUARY 8, 2001
Electric Cooperative, Inc.,)
and Calpine Construction)
Finance Company, L.P.)
_____)

AMENDED JOINT PETITION FOR DETERMINATION OF
NEED FOR AN ELECTRICAL POWER PLANT

Seminole Electric Cooperative, Inc. ("Seminole") and Calpine Construction Finance Company, L.P., ("Calpine") hereby file this Amended Joint Petition for Determination of Need for an Electrical Power Plant ("Amended Joint Petition"). By this Amended Joint Petition, Seminole and Calpine respectfully request the Commission's affirmative determination of need for the Osprey Energy Center (the "Osprey Project" or the "Project"). This Amended Joint Petition is filed pursuant to, and Seminole and Calpine are entitled to the relief requested herein by, the Florida Electrical Power Plant Siting Act, Sections 403.501 - 403.518, Florida Statutes (the "Siting Act"), Section 403.519, Florida Statutes, and Rules 25-22.080-.081, Florida Administrative Code ("F.A.C."). Pursuant to a Memorandum of Understanding (the "MOU")¹, Seminole and Calpine have entered into a Power Purchase

¹ The MOU obligated Seminole and Calpine to negotiate a Power Purchase Agreement incorporating the fundamental commercial principles agreed to in the MOU. A redacted copy of the PPA is included as Appendix C to Volume I of the Amended Exhibits to the Amended Joint Petition. In addition, the PPA is subject to a pending request for confidential classification for protective order filed by Seminole.

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Agreement (the "PPA"),² in which Seminole and Calpine have agreed to the sale of up to the full output of the Osprey Project from Calpine to Seminole for an initial term of five years, with renegotiation provisions pursuant to which Seminole may procure up to the full output of the Project from the Project's commercial in-service date through May 22, 2020.

The Osprey Project will be a natural gas-fired, combined cycle power plant located in Auburndale, Polk County, Florida. The Project will have 529 megawatts ("MW") of net generating capacity at average ambient site conditions, excluding duct-firing and power augmentation. The Project is expected to commence commercial operation in the second quarter of 2003.

PROCEDURAL BACKGROUND AND INFORMATION

1. The name and address of Joint Petitioner/Co-Applicant Seminole is as follows:

Seminole Electric Cooperative, Inc.
ATTN: Timothy S. Woodbury
Vice President of Strategic Services
16313 North Dale Mabry Highway (ZIP 33618)
Post Office Box 272000
Tampa, Florida 33688-2000.

The name and address of Joint Petitioner/Co-Applicant Calpine is as follows:

Calpine Construction Finance Company, L.P.
ATTN: Robert K. Alff, Senior Vice President
Calpine Eastern Corporation
The Pilot House, 2nd Floor, Lewis Wharf
Boston, Massachusetts 02110..

² Calpine entered the PPA through its affiliate, Calpine Energy Services, L.P., which will have the rights to the Osprey Project's output to meet its contractual commitments to Seminole.

2. All pleadings, motions, orders, and other documents directed to Joint Petitioner Seminole are to be served on the following:

Joseph A. McGlothlin
McWhirter Reeves
117 South Gadsden Street
Tallahassee, Florida 32301

with a courtesy copy to:

Timothy S. Woodbury
Vice President of Strategic Services
Seminole Electric Cooperative, Inc.
16313 North Dale Mabry Highway (ZIP 33618)
Post Office Box 272000
Tampa, Florida 33688-2000.

All pleadings, motions, orders, and other documents directed to Joint Petitioner Calpine are to be served on the following:

Robert Scheffel Wright
John T. LaVia, III
Diane K. Kiesling
Landers & Parsons, P.A.
310 West College Avenue (ZIP 32301)
Post Office Box 271
Tallahassee, Florida 32302

and

Joseph Regnery, Esquire
Calpine Eastern Corporation
Two Urban Centre
4890 West Kennedy Blvd., Suite 600
Tampa, Florida 33609,

with a courtesy copy to:

Tim Eves
Director, Business Development
Two Urban Centre
4890 West Kennedy Blvd., Suite 600
Tampa, Florida 33609.

3. The name and address of the agency affected by this Amended Joint Petition is:

Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, Florida 32399-0850.

PRIMARYLY AFFECTED UTILITIES

4. Seminole, an electric cooperative within the meaning of Section 403.503(13) and Chapter 425, Florida Statutes (2000), is the load-serving utility primarily affected by the proposed Osprey Project. Seminole is a Florida corporation whose purpose is to provide reliable power at the lowest feasible cost to Seminole's ten member distribution cooperatives (Seminole's "Members"), which in turn provide that electricity to their electric member-consumers at retail. The service areas of Seminole's ten Member cooperatives, for whose member-consumers Seminole is the source of electrical power, cover approximately half of the land area of the State. As the all-requirements electricity provider for its Members, Seminole meets its Members' electrical needs through a combination of owned and purchased power resources.

5. On an annual basis, Seminole, working closely with its Member cooperatives, forecasts the requirements of its Member cooperatives for electric capacity and energy, and assesses the reliability of its system over its planning horizon. Seminole plans and maintains its system to have a minimum 15 percent reserve margin at time of peak demand and to adhere to a maximum Expected Unserved Energy ("EUE") criterion of 1 percent. In recent years, the relationship of these criteria to Seminole's system conditions

has been such that the reserve margin criterion would be first to be violated by an increase in demand. It is therefore the determining factor with respect to measuring the adequacy of Seminole's supply resources.

6. When Seminole conducted its 2000 power need assessment, it related the capabilities of its portfolio of resources to its load forecast. Seminole determined that, as a consequence of growth in its Members' service areas and the expiration of certain power purchase contracts, Seminole would not be able to meet its 15% minimum reserve margin criterion in 2004 and subsequent years unless it acted to preserve the reliability of its system. Using the PROMOD IV® production costing model, fuel prices taken from its most recent fuel forecast, and system operating data, Seminole determined that "intermediate" generation technology (defined by Seminole as having a capacity factor between 17% and 87%) would be the most economic choice with which to meet the 2004 need for additional capacity. Accordingly, Seminole formulated a generation expansion plan designed to meet its reliability criteria over the planning horizon, engaged Black & Veatch to develop the cost of a self-build option with which to implement the expansion plan, and issued a Request for Proposals ("RFP") to parties interested in presenting potential solutions to Seminole. In the RFP, Seminole invited demand-side proposals as well as supply-side proposals.

7. Seminole's analysis of its need for capacity, the issuance of the RFP, and Seminole's evaluation of responses to the

RFP are described in detail in Volume I of the Amended Exhibits³ to this Amended Joint Petition. Volume I of the Amended Exhibits includes information regarding: Seminole's load forecast and the projected fuel prices that Seminole employed in its analyses; the calculation of the deficiency in Seminole's reserve margin that would appear in 2004 in the absence of action by Seminole to preserve the reliability of its system; the criteria that Seminole used to screen potential generation technologies; the computer models that Seminole used in its analyses; the manner in which Seminole quantified the amount of capacity that Seminole needs to add in 2004; the preparation and issuance of the RFP; and Seminole's evaluation of proposals received in response to the RFP. Volume I is hereby incorporated by reference as a part of this Amended Joint Petition.

8. Taking considerations of reliability and economics into account, Seminole determined that it needs to add 350 MW of capacity in 2004 in order to maintain system reliability and integrity and to provide its Members an adequate supply of electricity at reasonable cost. Based on computerized production costing simulations that compared the impact of four short-listed bids on Seminole's system revenue requirements, Seminole concluded that a purchase of 350 MW of firm capacity from Calpine's Osprey Project presented Seminole's most desirable and cost-effective alternative for meeting its identified need. Seminole and Calpine

³ The Amended Exhibits (Volumes I and II) of the Amended Joint Petition will be filed in the near future.

proceeded to negotiate the basic commercial terms of a power purchase agreement, which were incorporated into the MOU. On December 14, 2000, Seminole and Calpine executed the definitive PPA incorporating the terms of the MOU. The PPA, which is described in more detail below, is being filed subject to a separate request for confidential classification and motion for protective order.

9. Calpine Construction Finance Company, L.P., a Delaware Limited Partnership, is a wholly-owned subsidiary of Calpine Corporation, a Delaware corporation. As the entity supplying capacity and energy that will meet Seminole's identified needs, Calpine is a proper joint applicant pursuant to Section 403.519, Florida Statutes. Calpine expects to be represented on the Florida Reliability Coordinating Council ("FRCC"). Volume II of the Amended Exhibits to this Amended Joint Petition provides additional information regarding Calpine, the Osprey Energy Center, and the Project's impacts, and the Amended Exhibits are incorporated herein by reference.

10. Calpine will own the Project and will continue to market the Project's capacity and associated energy to Seminole and to other utilities under negotiated contractual arrangements entered into pursuant to Calpine's Rate Schedule No. 1 approved by the Federal Energy Regulatory Commission ("FERC"). In Re: Calpine Construction Finance Company, L.P., 90 FERC ¶61,164 (February 23, 2000). A copy of the FERC letter order is included as Appendix A to Volume II of the Amended Exhibits accompanying the Amended Joint Petition. Calpine filed its application to the Federal Energy

Regulatory Commission for Exempt Wholesale Generator certification on November 3, 2000.

11. Calpine is the developer of the Osprey Energy Center. In that role, Calpine is arranging for the permitting of the Project, for the engineering, procurement, and construction of the Project, for the Project's fuel supply, and for other services necessary to bring the Project into commercial operation.

12. Calpine projects that sales from the Osprey Project will be made at wholesale to Seminole and, in the event that Seminole does not contract for all of the Project's power available to it at particular points in time, to other Florida load-serving entities and retail-serving utilities for use in Peninsular Florida. Calpine expects that the full seasonally rated capacity of the Project, approximately 496 MW in the summer and approximately 578 MW in the winter, will be sold primarily if not entirely to Seminole, and to other utilities in Peninsular Florida in the event that Seminole does not need all of the capacity available to it, at each respective summer and winter peak over the first ten years of the Project's operation and for all foreseeable years beyond that initial period. Calpine expects to sell approximately 4.1 million to 4.5 million megawatt-hours ("MWH") of electric energy from the Project to Seminole and to other utilities in Peninsular Florida per year from 2003 through 2012, reflecting an average annual capacity factor of approximately 91 percent. (The Project's actual output will be proportionately less in 2003, depending on its actual commercial in-service date.)

13. Calpine Corporation is headquartered in San Jose, California, with regional offices in Boston, Massachusetts, Tampa, Florida, Houston, Texas, and Pleasanton, California. 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 at wholesale. Calpine Corporation currently owns, has ownership interest in, or is developing or constructing a total of 78 generating assets (28 existing gas-fired and 19 existing geothermal projects, 18 projects under construction, and 13 projects under development) having a combined nominal capacity of 24,763.7 MW with Calpine Corporation's net ownership totaling 21,807.9 MW. Calpine Corporation's 28 operating gas-fired generating plants are located in California (7 plants), New Jersey (3 plants), New York (4 plants), Pennsylvania (2 plants), Texas (5 plants), and 1 plant each in Florida, Illinois, Massachusetts, Oklahoma, Rhode Island, Virginia, and Washington. Calpine Corporation's geothermal power generating units have approximately 850 MW of capacity.

THE SEMINOLE-CALPINE POWER PURCHASE AGREEMENT

14. Pursuant to the terms of the PPA, which the parties executed on December 14, 2000, Calpine will sell and Seminole will buy 350 MW of firm capacity⁴ from the Project from June 1, 2004 through May 31, 2009. Seminole may exercise specified rights to

⁴ The firm capacity commitment is adjusted on a monthly basis and ranges from 340 MW in July and August to 360 MW in December, January, and February of each year.

purchase additional amounts of firm capacity, up to and including the full capacity of the Osprey Project (to the extent that the additional capacity, i.e., capacity above the specified firm purchase commitment, is not committed to other utilities at the time that Seminole elects to exercise its option), for the period beginning with the Project's commercial in-service date, presently projected to be June 2003, and continuing through May 31, 2009. Under the terms negotiated by the parties, Seminole has corresponding rights to purchase all of the energy output of the Project. The PPA contains other terms and conditions that, among other things, provide for good faith negotiations for continuation of firm power purchases by Seminole through May 22, 2020, and that otherwise protect Seminole's interests. As noted above, a copy of the PPA is being filed concurrently with this Amended Joint Petition, subject to a request for confidential classification and motion for protective order. In addition, the PPA (in redacted form) is included as Appendix C to Volume I of the Amended Exhibits to the Amended Joint Petition.

THE PROPOSED OSPREY ENERGY CENTER

15. The Osprey Energy Center will be a natural gas-fired, combined cycle generating plant with 529 MW of net generating capacity (manufacturer's guarantee at average ambient site conditions, excluding duct-firing and power augmentation). The Project's rated summer capacity will be 496 MW and its rated winter capacity will be 578 MW, also without duct-firing and power augmentation. With duct-firing and power augmentation, the Osprey

Project's maximum rated output would be 590-600 MW under summer peak conditions and 675-690 MW under winter peak conditions. The Project will consist of two Siemens-Westinghouse Model 501F advanced technology, combustion turbine generators, two matched heat recovery steam generators, and one steam turbine generator. The facility will utilize dry low-NO_x combustion technology and a selective catalytic reduction ("SCR") system to minimize emissions of nitrogen oxides ("NO_x"). The Project's primary sources of process and makeup water to the cooling towers will be reclaimed water from the City of Auburndale's Allred Wastewater Treatment Plant, located approximately one mile east of the Project site, and on-site groundwater wells. The Project will utilize wet cooling towers.

16. The Osprey Energy Center site is located in the City of Auburndale, Polk County, Florida. The Project will be located on approximately 19.5 acres situated approximately 1.5 miles southwest of downtown Auburndale and approximately 37 miles east of Tampa Bay. Maps of the site location and site layout are shown in Figures II-2, II-3, and II-4 in Volume II of the Amended Exhibits accompanying this Amended Joint Petition. The site is a non-producing citrus grove and is presently unused. The Project has been planned and designed to be consistent with the City of Auburndale's zoning category and comprehensive plan future land use designation applicable to utility uses.

17. The Project will be fueled by natural gas, which will be delivered through the trans-Florida pipeline being developed by

Gulfstream Natural Gas System, L.L.C. ("Gulfstream"). The Gulfstream pipeline is planned to traverse portions of Polk County as illustrated in Figures II-13, II-14, and II-15 in Volume II of the Amended Exhibits accompanying this Amended Joint Petition. Pursuant to a Precedent Agreement between Calpine East Fuels, L.L.C., and Gulfstream, Gulfstream has committed to provide firm transportation service for sufficient volumes of natural gas to operate the Osprey Energy Center at full load for a term of 20 years with renewal provisions beyond the initial term. A copy of the Precedent Agreement (in redacted form to protect confidential information) is included as Appendix B to Volume II of the Amended Exhibits.

18. The Osprey Energy Center will be electrically interconnected to the Peninsular Florida bulk transmission grid at TECO's Recker Substation, which is located adjacent to the east boundary of the Osprey site. Transmission system impact studies commissioned independently by Calpine included load flow analyses, transient stability analyses, and short circuit analyses. The transmission system impact studies indicate that, with certain transmission upgrades, the existing Peninsular Florida transmission grid will accommodate the delivery of the Osprey Project's net output for use in Peninsular Florida, regardless which Florida utilities purchase and receive the Project's output.⁵ The studies

⁵ The transmission system impact studies were commissioned by Calpine and completed before Seminole and Calpine executed the MOU and PPA. The conclusions of the studies confirm that, with upgrades defined pursuant to TECO's open access transmission

also indicate that, under normal operating conditions, i.e., with all facilities in service, the Project will not materially burden the transmission system or violate any transmission constraints or contingencies in Peninsular Florida. 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. These figures, according to TECO, are based on detailed cost estimates prepared by TECO's engineering departments.

19. The Osprey Energy Center's advanced technology, combined cycle design with natural gas fuel will provide: (a) high availability, with a projected average annual Equivalent Availability Factor of 94.5 percent; (b) high reliability, with a projected Equivalent Forced Outage Rate of approximately 2.0 percent and an average Planned Outage Rate of 3.5 percent per year; and (c) high efficiency, with a projected full load net heat rate of 6,800 Btu per kWh based on the Higher Heating Value ("HHV") of natural gas at ambient site conditions. See Table II-3 of the

tariff, the entire output of the Project can be delivered to Seminole without materially burdening the Peninsular Florida transmission system and without violating any transmission constraints or contingencies.

Amended Exhibits. The Project will utilize dry low-NO_x combustion technology and SCR to control NO_x emissions. The Project has been designed with careful consideration of environmental issues and will, accordingly, be one of the cleanest power plants in Florida and in the United States. The Project's operation is likely to result in measurable reductions in emissions of SO₂, CO₂, NO_x, and other air pollutants in Peninsular Florida. Table II-17 presents summary data on the projected reductions in SO₂ and NO_x emissions that would result from adding the Osprey Project into Peninsular Florida's power supply system in addition to all previously planned units. Generally, in this scenario, the Project would be expected to reduce total SO₂ emissions from the production of Peninsular Florida's electricity supply by approximately 5,000 to 17,000 tons per year and to reduce total NO_x emissions by approximately 3,500 to 7,500 tons per year.

NEED FOR THE PROPOSED POWER PLANT

20. The specific condition that indicates a need for the Osprey Energy Center is Seminole's need for additional electric generating capacity and electrical energy to meet the needs of its Member systems and of those systems' member-consumers for system reliability and integrity and for adequate, cost-effective electricity. Additional conditions indicating the need for the Osprey Energy Center include Peninsular Florida's need for additional, efficient generating capacity for system reliability and integrity and for adequate, cost-effective electricity, subject to the Project's output being contractually committed to Seminole

or to other Peninsular Florida load-serving utilities. The following discussion addresses in detail the manner in which the Project meets these needs.

A. Seminole's Need For The Osprey Project.

21. Seminole needs the Osprey Project to maintain its system reliability and integrity and to provide adequate electricity at a reasonable cost to its Member cooperative utility systems and to those systems' member-consumers. The Osprey Project, which Calpine is committed to make available to Seminole pursuant to the PPA, is the most cost-effective alternative available to Seminole to meet these needs. Additionally, the Osprey Project and the PPA provide significant strategic benefits to Seminole.

1. Seminole's Need for System Reliability and Integrity.

22. Working closely with its Member cooperatives, Seminole forecasts its Member systems' requirements for capacity and energy and assesses the reliability of its system over its planning horizon. Seminole plans and maintains a system having a minimum 15% reserve margin at the time of peak demand and an Expected Unserved Energy criterion of 1% maximum EUE. At present, Seminole's reliability planning decisions are driven by the 15% reserve margin criterion.

23. Pursuant to the PPA, Seminole will purchase 350 MW of firm capacity from the Osprey Project from June 1, 2004 through May 31, 2009. Seminole presently has the right to purchase additional firm capacity from the Osprey Project, up to the full output of the Project, from the Project's commercial in-service date through May

2009, to the extent that such additional capacity (i.e., above the firm 350 MW purchase commitment) has not been committed under contract by Calpine to other Florida utilities at the time that Seminole wishes to exercise this option. Seminole's firm 350 MW capacity purchase from the Osprey Project, together with Seminole's other identified capacity additions, will enable Seminole to maintain satisfactory reserve margins from 2004 through 2009, assuming Seminole's "base case" load forecast. The availability of additional capacity from the Project gives Seminole additional planning flexibility.

2. Seminole's Need for Adequate, Cost-Effective Electricity.

24. Seminole needs the Osprey Project to meet its need for adequate electricity at a reasonable cost. As explained in Volume I of the Amended Exhibits to the Amended Joint Petition, the Osprey Energy Center, which Calpine has committed to Seminole pursuant to the PPA, is the most cost-effective generation alternative available to Seminole to meet its needs and the needs of its Member cooperatives.

3. Strategic Considerations.

25. In evaluating its self-build options using various generating technologies and in evaluating the various power purchase options available to it to meet its needs, Seminole also considered several strategic factors. As compared to the self-build options, the Osprey Project MOU and PPA offered Seminole several strategic benefits, including:

- a five-year obligation on Seminole, as compared to the

"life of the plant" economic obligation that accompanies building and owning a power plant;

- reduced market risk deriving from the fact that it is easier to predict future market conditions for five years than for thirty years or more;
- enhanced flexibility for Seminole in meeting its 2003-2009 power supply needs, particularly Seminole's ability to increase the firm capacity under the PPA in the event that new forecasts of Seminole's load growth exceed current projections;
- enhanced flexibility for Seminole in meeting its power supply needs beyond 2009 under terms set forth in the PPA; and
- pricing for 350 MW of power based on a 540 MW-class power plant.

B. Peninsular Florida's Need for the Osprey Project.

26. The Osprey Project is consistent with and meets Peninsular Florida's need for system reliability and integrity and for adequate, cost-effective electricity. The Project also provides significant strategic benefits to Peninsular Florida.

1. Peninsular Florida System Reliability and Integrity.

27. The Osprey Project is consistent with and meets Peninsular Florida's need for generating capacity to maintain system reliability and integrity. According to the 2000 Regional Load & Resource Plan prepared by the Florida Reliability Coordinating Council and dated July 2000 ("2000 FRCC Regional

Plan"), Peninsular Florida needs approximately 11,000 MW of new installed capacity in order to maintain winter reserve margins generally between 7 percent and 13 percent without exercising load management and interruptible resources from the winter of 2000-2001 through the winter of 2009-2010. The Osprey Project will help to meet this need.

28. The Osprey Project will improve Peninsular Florida reserve margins by up to 1.1 to 1.3 percent in each year from 2003 through 2012, subject to the Project's output being contractually committed to Seminole or to other Peninsular Florida load-serving utilities. See Tables II-7 and II-8 in Volume II of the Amended Exhibits to this Amended Joint Petition. In an extreme weather event, e.g., a prolonged period in the summer with daily high temperatures exceeding 100 degrees Fahrenheit, or winter weather similar to that experienced at Christmas of 1989, the Project will provide substantial additional generating capacity to Peninsular Florida that would not otherwise be available. Assuming an average coincident peak demand of 3.5 to 5 kW per residential customer, the Project's capacity would be sufficient to maintain electric service to approximately 115,000 to 165,000 homes (or equivalent load) during such an event. With duct-firing and power augmentation producing an additional 80 MW in the summer and an additional 90 MW in the winter, the Project's output would enable Florida retail-serving utilities to maintain service to an additional 16,000 to 25,000 homes (or equivalent load) during seasonal peak conditions.

29. The Osprey Project will be interconnected to the

Peninsular Florida bulk power supply system at TECO's Recker Substation, which is located adjacent to the Project site. Transmission studies prepared for Calpine by both Navigant Consulting and by TECO show that, with certain upgrades (which will be made pursuant to TECO's transmission service tariffs), the Osprey Project's output can be delivered to Seminole (or to any other utility in Peninsular Florida) without materially burdening the transmission system, without causing any violations of any transmission constraints, and without otherwise adversely affecting the reliability of the grid.

2. Peninsular Florida's Need for Adequate, Cost-Effective Electricity.

30. Subject to the Project's output being contractually committed to Seminole and to other Peninsular Florida load-serving utilities, the Osprey Project is consistent with and meets Peninsular Florida's need for adequate, cost-effective electricity. Based on its highly efficient heat rate and low direct construction cost, the Project is demonstrably cost-effective relative to virtually all other gas-fired combined cycle power plants proposed for Florida over the next ten years.

31. The Project uses natural gas-fired combined cycle technology, which is the predominant technology of choice for new plants planned by Florida utilities, including Seminole. The Project's direct installed cost and heat rate compare favorably with those of other proposed units. (See Table II-12 in Volume II of the Amended Exhibits accompanying the Amended Joint Petition.)

Moreover, the Project will have a relatively low dispatch cost, making it significantly cost-effective as an energy supply resource within the Peninsular Florida power supply system. Tables II-13.A and II-13.B show that there is approximately 35,000 MW of capacity in Peninsular Florida that is less cost-effective, in economic dispatch terms, than the Osprey Project.

32. The Osprey Project can also reasonably be expected to contribute meaningfully to meeting Peninsular Florida's need for adequate electricity at a reasonable cost. Peninsular Florida's Net Energy for Load is projected to grow from 196,042 gigawatt-hours ("GWH") in 2000 to 249,725 GWH in 2012, an annual average growth rate of approximately 2.0 percent per year. See Table II-5 in Volume II of the Amended Exhibits accompanying this Amended Joint Petition. It is reasonable to expect that the Project will be operated economically within the Peninsular Florida system such that it will contribute to meeting the energy requirements of Seminole and other Peninsular Florida retail-serving utilities which contract with Calpine for the Project's output in a cost-effective manner. Analyses of the Osprey Project's impacts on the Peninsular Florida power supply system were prepared using the PROMOD IV® generation dispatch model.⁶ These analyses show that the Osprey Project, if incorporated into the Peninsular Florida power supply system in addition to all planned capacity and

⁶ A description of the PROMOD IV® model used to project the Osprey Energy Center's operations and to analyze the costs and benefits of the Project is set forth more fully below and in the Amended Exhibits.

operated on an economic dispatch basis within Peninsular Florida,⁷ and subject to the Project's output being contractually committed to Seminole and to other Peninsular Florida load-serving utilities, would operate at annual capacity factors ranging from approximately 86 percent to approximately 93 percent over the 2003-2012 analysis period. Given the fundamental opportunity to engage in wholesale transactions in the State and the Project's high efficiency and favorable cost-effectiveness characteristics, it is likely that the Project will operate at similarly high capacity factors even though most or all of the Project's capacity is committed to Seminole on a firm basis.

33. The PROMOD IV® analyses show that the Project, if operated on an economic dispatch basis within Peninsular Florida and subject to the Project's output being contractually committed to Seminole and to other Peninsular Florida load-serving utilities, will generally reduce the average production cost for Peninsular Florida by \$0.54 to \$0.84 per MWH for each year of the analysis period.⁸ See Table II-17 in Volume II of the Amended Exhibits

⁷ The subject PROMOD IV® analyses were prepared before Seminole and Calpine executed the PPA and accordingly are based on the assumption that the Project would be added into the Peninsular Florida power supply system in addition to all other planned capacity, including the 2004 combined cycle unit shown in Seminole's 2000 Ten-Year Site Plan. Since the Project is actually meeting Seminole's 2004 capacity need, the impacts of the Project will be slightly more beneficial, due to the fact that the amount of other gas-fired combined cycle capacity will actually be less than in the referenced analyses prepared by Slater Consulting for Calpine.

⁸ These values represent only the potential reduction in production costs for Peninsular Florida. They do not include the

accompanying the Amended Joint Petition. Again subject to the Project's output being contractually committed to Seminole and to other Peninsular Florida load-serving utilities, this would translate to overall cost savings of \$100 million to \$200 million per year, with a total net present value of approximately \$794 million, over the 2003-2012 analysis period. Moreover, the Project's estimated projected operating costs will place it favorably in the Peninsular Florida "supply stack" of generating plants: the Project will be more cost-effective than approximately 35,000 MW of the generating capacity projected to be serving Peninsular Florida in 2008. See Table II-13.B of the Amended Exhibits.

34. Calpine projects that all of the Project's output over the 2003 through 2012 period is expected to be sold under contract to Seminole or to other utilities in Peninsular Florida (i.e., within the FRCC region), on the basis of the relative economics of the Project, other Peninsular Florida generation facilities, and generation facilities in neighboring regions. Hypothetical exports from the Project would also be limited because additional transmission wheeling charges would be incurred to make such sales. Finally, limitations on transmission export capacity at the Georgia/Florida interface will limit power exports from Florida by Calpine and by all other Florida power suppliers.

additional value that the Project could provide by reducing the cost of ancillary services in Peninsular Florida.

3. Strategic Considerations.

35. The Osprey Energy Center is consistent with strategic factors that may be considered when procuring power supply resources or building a power plant, not only from Seminole's perspective but also from the perspective of the State as a whole.

36. 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.

37. The Project has a low installed cost, a highly efficient heat rate, and a benign environmental profile, assuring that it will be a valuable long-term power supply resource. 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 to both Seminole and Calpine (than with less efficient and more polluting power plants) that the Project will be adversely affected by future changes in environmental regulations.

38. Moreover, the Project's use of natural gas in a highly efficient generation technology will improve the overall environmental profile of electricity generation in Florida. The Project will also conserve primary energy consumed for electricity production in Florida. 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. For example, the PROMOD IV® analyses prepared for Calpine show that in

2008, the Osprey Project's operations would reduce the average heat rate for all FRCC power supply from 8,576 Btu per kWh without the Osprey Project to 8,541 Btu per kWh with the Project, and that the Project's operations will reduce the consumption of petroleum fuels for electricity production by approximately 11,000,000 Million Btu (the equivalent of approximately 1.7 million barrels of No. 6 fuel oil). See Tables II-14 and II-15.A in Volume II of the Amended Exhibits accompanying this Amended Joint Petition.

C. Calpine's Use of the Osprey Energy Center.

39. Calpine will use the Osprey Project to fulfill its contractual obligations to Seminole pursuant to the PPA. The Project is the most cost-effective alternative available to Calpine for meeting its obligations to Seminole. Screening analyses prepared for Calpine demonstrate that the combined cycle generating technology chosen for the Project is the most cost-effective over a wide range of capacity factors. See Table II-20 in Volume II of the Amended Exhibits to the Amended Joint Petition.

GENERATING AND NON-GENERATING ALTERNATIVES
TO THE PROPOSED POWER PLANT

40. In its system planning processes, Seminole considered baseload, intermediate, and peaking generation technologies as alternatives for meeting its identified needs for additional resources to maintain system reliability. Through its RFP process, Seminole considered various proposals to meet that need, which Seminole evaluated against each other and against a Seminole self-build option based on engineers' estimates prepared by Black &

Veatch. Seminole invited demand-side proposals in response to its RFP, but received no such proposals. In summary, as described fully in Volume I of the Amended Exhibits to this Amended Joint Petition, Seminole considered all reasonably available generating and non-generating alternatives to the proposed purchase from the Osprey Project.

41. The major available generating alternatives that Calpine 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. See Tables II-19 and II-20 of the Amended Exhibits. These evaluations clearly indicate that the best choice for Calpine, considering economics, cost-effectiveness, reliability, long-term flexibility, environmental benefits, and strategic factors, is gas-fired combined cycle capacity. This choice is confirmed 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.

42. There are no viable non-generating alternatives to the Osprey Energy Center. Calpine is in the business of providing efficient, cost-effective wholesale power to load-serving utilities

such as Seminole. As a federally regulated wholesale public utility, Calpine does not engage in end-use conservation programs and is not required to have conservation goals pursuant to Section 366.82(2), Florida Statutes. Nonetheless, the Project, like other advanced-technology, gas-fired combined cycle units, provides energy efficiency benefits by using less primary fuel to produce a given quantity of electricity. Tables II-15.A and II-15.B show projected reductions in fuel consumption, by fuel type, that are expected to result from the Osprey Project's addition to the Peninsular Florida power supply system. Accordingly, the Project promotes and is specifically consistent with the 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. Fla. Stat. § 366.81 (2000). The Project also 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. Table II-16 in Volume II of the Amended Exhibits shows the reductions in emissions of SO₂ and NO_x that are projected to result from the addition of the Osprey Project into the Peninsular Florida power supply system.

ENERGY CONSERVATION

43. Seminole serves the needs of its Member cooperative utility systems, which in turn serve the end use needs of their member-consumers. Seminole's projected demands are defined by the

sum of its Members' forecasted coincident demands in the FPL control area and in Seminole's Direct Service Area, and the Capacity Commitment level in the FPC control area. As the demand forecasts are developed in close cooperation with the Member cooperatives, this forecast takes into account the impact of the Members' conservation and load management programs. Seminole has adopted a rate structure designed to send proper price signals to its Members to encourage the use of cost-effective load management measures. As described in Volume I of the Amended Exhibits, Seminole's Member systems presently have programs in place that are generally designed to achieve all reasonably achievable, cost-effective peak demand reductions, and Seminole's demand and energy forecasts take full account of these effects. Accordingly, there are no energy conservation measures reasonably available to Seminole, or to its Member systems, that would mitigate the need for the proposed Osprey Energy Center.

44. As explained above, the Project meets and serves the overall goals of the Florida Energy Efficiency and Conservation Act ("FEECA"), Sections 366.80-.85 and 403.519, Florida Statutes (2000), because the Project contributes directly and significantly to the increased efficiency and cost-effectiveness of electricity production and natural gas use. Fla. Stat. § 366.81 (2000). The Project does so by using state-of-the-art generation technology. The Project's primary energy conversion efficiency of approximately 50.2 percent (HHV of natural gas) is significantly better than

almost all existing utility generating capacity in Florida,⁹ better than the total efficiency of most cogeneration facilities, and as good as or better than the vast majority of other Florida utilities' proposed new gas-fired combined cycle capacity. To the extent that the Project, with its average heat rate of 6,800 Btu per kWh (HHV of natural gas) at ambient site conditions, displaces generation from less efficient gas-fired units, the Project will result in substantial reductions in natural gas use to generate any given level of electrical energy. (Stated differently, the Project will result in significant increases in the efficiency of natural gas use.) For example, when the Project displaces generation from less efficient gas-fired steam units, which have heat rates generally in the range of 10,000 to 11,000 Btu per kWh, the Project will result in net natural gas savings of approximately 32 to 38 percent. Moreover, the PROMOD IV® analyses prepared for Calpine indicate that the Project can be expected to displace significant amounts of oil-fired generation, reducing oil consumed for electricity generation by approximately 8 trillion to 15 trillion Btu (equivalent to approximately 1.3 million to 2.4 million barrels of oil) per year. Accordingly, the Project will contribute to the express statutory goal of conserving expensive resources, especially petroleum fuels. Fla. Stat. §§ 366.81 & 366.82(2)

⁹ Tables II-13.A and II-13.B of the Amended Exhibits show the heat rates for all Peninsular Florida power plants as they were included in the PROMOD IV® analyses of the Project's impacts. These data show that the Osprey Project is more efficient than approximately 97 percent of the total fossil-fueled generating fleet that is projected to be serving Peninsular Florida in 2008.

(2000). Tables II-15.A and II-15.B in Volume II of the Amended Exhibits show the projected net reductions in fuel use that the Project is expected to provide as a benefit to the State. These data show that the Project is expected to reduce the total primary energy used for Peninsular Florida power supply by approximately 8 to 10 trillion Btu per year over the analysis period.

45. In addition, the Project's capacity and energy will be economically and environmentally preferable to other supply-side alternatives. Thus, future cost-effective conservation measures would likely displace other supply-side alternatives, rather than displace the capacity and energy available from the Project.

TRANSMISSION FACILITIES

46. The Osprey Project will be electrically interconnected to the Peninsular Florida transmission system at the TECO Recker Substation located adjacent to the east boundary of the site.¹⁰ The transmission interconnection, switching equipment, and transmission lines are described in Volume II of the Amended Exhibits. Tampa Electric Company 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. These figures, according to TECO, are based on detailed cost

¹⁰ This information regarding transmission facilities and studies is provided to the Commission for informational purposes only. No transmission facilities are proposed in the site certification application for the Osprey Energy Center.

estimates prepared by TECO's engineering departments.

ASSOCIATED FACILITIES

47. There are no linear associated facilities to be permitted in the site certification proceedings for the Osprey Project. As explained above, the Project will interconnect to the existing TECO Recker Substation and may require certain transmission upgrades which will be determined in accordance with TECO's open access transmission tariff. The Project's natural gas fuel will be delivered through the Gulfstream pipeline. The Project will be connected to Gulfstream's main pipeline by a 1.5-mile extension of a 16-inch diameter lateral pipeline to be constructed by Gulfstream to the Project site boundary.¹¹ The minimum pipeline pressure at the Calpine site is guaranteed by Gulfstream to be 650 psig.

CONSEQUENCES OF DELAY

48. Delaying the construction and operation of the Osprey Energy Center will result in adverse consequences to Seminole and to Peninsular Florida generally.

A. Adverse Consequences of Delay on Seminole.

49. Delaying the construction and operation of the proposed Osprey Project will adversely affect Seminole by causing Seminole's total power supply costs to be greater than they would be if the Project were brought into service as sought by the joint applicants, by reducing Seminole's flexibility with respect to

¹¹ Details of the natural gas transportation arrangements are provided for informational purposes only. Permitting of the pipeline will be sought by Gulfstream in a separate proceeding.

reliability and cost-effective power supply, and by otherwise limiting Seminole's ability to obtain the benefits of the Project and the PPA for its Member systems and their member-consumers.

B. Adverse Consequences of Delay on Peninsular Florida.

50. Delaying the construction and operation of the Osprey Energy Center will result in lower reserve margins for Seminole and potentially for other utilities in Peninsular Florida that contract with Calpine for the Project's output for each month that the Project's construction and operation are delayed. Delaying the construction and operation of the Project will also delay the availability of cost-effective power to Seminole and potentially to other utilities in Peninsular Florida which contract with Calpine for output from the Project. Delay also costs the State the fuel savings that the Project would provide in terms of reduced primary fuel (i.e., oil, gas, and coal) consumption for the same amount of electricity produced. As shown in Table II-15.B in Volume II of the Amended Exhibits to the Amended Joint Petition, the Project is expected to provide annual primary fuel savings of approximately 8 to 10 trillion Btu (8,000,000 to 10,000,000 MMBtu) from 2004 through 2012. Delaying the construction and operation of the Project will deprive the State of these fuel savings benefits. Delaying the Project's construction and operation will also deprive the State of the environmental benefits of the Project's operations, including substantial reductions in the emissions of SO₂ and NO_x from electricity generation.

ISSUES OF MATERIAL FACT

51. Seminole and Calpine believe that the following may be issues of material fact in this proceeding:

- a. Whether the Osprey Energy Center is needed, taking into account Seminole's need for system reliability and integrity;
- b. Whether the Osprey Energy Center is needed, taking into account Seminole's need for adequate electricity at a reasonable cost;
- c. Whether the Osprey Energy Center is the most cost-effective alternative available to meet the needs of Seminole, its Member utility systems, and those systems' member-consumers;
- d. Whether there are conservation measures reasonably available to Seminole, to its Members, or to Calpine to mitigate the need for the Osprey Energy Center;
- e. Whether the Project's output is committed to use by Florida retail electric customers consistent with the Florida Supreme Court's opinion in Tampa Electric Co. v. Garcia;
- f. Whether Calpine has made adequate provision for fuel supply and delivery for the Project; and
- g. Whether Seminole and those it serves would suffer any adverse consequences if the Project is not brought into service as proposed by Seminole and Calpine.

52. Based on the Commission's consideration of these issues,

the Commission will decide the ultimate issue presented, i.e., whether to grant Seminole's and Calpine's requested determination of need for the Osprey Energy Center. As set forth above, Seminole and Calpine allege that the Osprey Energy Center is needed to satisfy the criteria set forth in the statute; that it is the most cost-effective alternative to meet Seminole's power supply needs and, subject to appropriate contracts, to meet the power supply needs of other Peninsular Florida utilities; that there are no conservation measures available to Seminole, to Seminole's Members, or to Calpine to mitigate the need for the Project; and that the Osprey Project is consistent with the public interest, as well as with the best interests of Florida and its electric customers.

STATUTES AND RULES THAT ENTITLE SEMINOLE AND CALPINE TO RELIEF

53. Seminole and Calpine are entitled to the requested determination of need pursuant to Section 403.519, Florida Statutes, Commission Rules 25-22.080-.081, F.A.C., and the Siting Act.

ULTIMATE FACTS THAT ENTITLE SEMINOLE AND CALPINE TO RELIEF

54. The ultimate facts that entitle Seminole Electric Cooperative, Inc. and Calpine Construction Finance Company, L.P. to the relief requested are:

- a. that the Osprey Energy Center is needed, taking into account Seminole's need for system reliability and integrity;
- b. that the Osprey Energy Center is needed, taking into account Seminole's need for adequate electricity at a

reasonable cost;

- c. that the Osprey Energy Center is the most cost-effective alternative available to meet Seminole's need for additional power supply resources;
- d. that the Osprey Energy Center will result in measurable reductions in the use of primary fuel for electricity generation in Florida, will increase the overall efficiency of electricity production and natural gas use, and will also help to conserve expensive energy resources, particularly petroleum fuels;
- e. that there are no conservation measures reasonably available to Seminole, to its Members, or to Calpine to mitigate the need for the Osprey Energy Center;
- f. that Calpine has made adequate provision for fuel supply and delivery for the Osprey Energy Center; and
- g. that the Osprey Energy Center's output is committed to use by Florida retail electric customers in compliance with the Florida Supreme Court's opinion in Tampa Electric Co. v. Garcia.

The specific facts that entitle Seminole and Calpine to relief are alleged in paragraphs 1 through 50 of this Amended Joint Petition for Determination of Need for an Electrical Power Plant.

CONCLUSION

55. The proposed Osprey Energy Center meets the needs of Seminole Electric Cooperative, Inc. and the needs of Seminole's

Member cooperative utilities that serve their member-consumers at the retail level for system reliability and integrity, and for adequate electricity at a reasonable cost. The Osprey Project is the most cost-effective alternative available to Seminole to meet its power supply needs and will meet Seminole's need for adequate electricity at a reasonable cost. Subject to the Project's output being contractually committed to other Peninsular Florida load-serving utilities, the Project is also expected to contribute meaningfully to meeting the needs of such Peninsular Florida utilities for system reliability and integrity and for adequate, cost-effective electricity. Significantly, the Project's availability to Seminole and those whom Seminole serves will yield favorable risk reduction benefits to Seminole and those it serves. Subject to the Project's output being contractually committed to other Peninsular Florida utilities, the Project will provide similar risk reduction benefits to such other utilities and their ultimate consumers. The Osprey Project's operation will significantly reduce wholesale power supply costs for Seminole; subject to contractual commitments to other Peninsular Florida utilities, the Project would also be expected to reduce wholesale power costs for such other utilities.

56. Finally, the Project is consistent with, and promotes the goals of, the Florida Energy Efficiency and Conservation Act. Accordingly, the Project is consistent with the public interest in that it will enhance energy efficiency and conserve primary fuels, as well as provide environmental benefits associated with those

efficiency improvements.

57. Accordingly, the Commission should grant the requested determination of need for the Osprey Energy Center, as described herein.

RELIEF REQUESTED

WHEREFORE, Seminole Electric Cooperative, Inc., and Calpine Construction Finance Company, L.P., respectfully request the Commission to enter its order GRANTING this Amended Joint Petition for an affirmative determination of need for the proposed Osprey Energy Center, as described herein.

Respectfully submitted this 8th day of January, 2001.



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CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a true and correct copy of the foregoing has been furnished by hand delivery (*), or U.S. Mail, on this 8th day of January, 2001, to the following:

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