



Statutes (the "Siting Act"), Section 403.519, Florida Statutes, and Rules 25-22.080-.081, Florida Administrative Code ("F.A.C."). The Commission should grant the requested determination of need because the Project satisfies all applicable statutory and rule criteria. Specifically, the Project will, when constructed, meet the needs of specific utilities with responsibility for providing power to retail customers in Florida, contribute meaningfully to the reliability of the power supply system in Peninsular Florida, lower the cost of electricity generation in Peninsular Florida, enhance the overall efficiency of electricity production in Peninsular Florida, and reduce the environmental impacts of electricity generation in Florida.

The Osprey Energy Center will have a net output capability, without duct-firing or power augmentation, of 548 megawatts (nominal) at ISO temperature (59F°) and relative humidity (60% R.H.) conditions. The Project's net seasonal capability will be 506 MW at summer peak and 587 MW at winter peak, also without duct-firing or power augmentation. The power block will consist of two advanced technology Siemens-Westinghouse Model 501F combustion turbine generators ("CTGs"), two matched heat recovery steam generators ("HRSGs") that include duct-firing capability, and one steam turbine generator ("STG"), that has the ability to utilize steam for power augmentation to increase output.<sup>1</sup> The Project is

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<sup>1</sup> Duct-firing is a process whereby additional gas burners are placed within the HRSGs to increase gas temperature and generate

expected to commence commercial operation in the second quarter of 2003. There are no linear associated facilities that will be permitted in the Osprey Project site certification proceeding. The Project's natural gas fuel supply will be delivered via a 16-inch underground natural gas lateral pipeline to be constructed by Gulfstream Natural Gas System, L.L.C., to the boundary of the Project site. The Project will be connected to the Peninsular Florida transmission grid at the Tampa Electric Company ("TECO") Recker Substation located immediately adjacent to the east boundary of the Project site. The direct construction cost of the Project is projected to be approximately \$194.8 million. The Project will be constructed and brought into commercial service with a combination of equity and debt, with the debt being structured by Calpine as a "construction revolver," a form of revolving credit account with several investment banks used to fund the debt portion of the construction and development costs of multiple Calpine projects. The direct construction cost equates to approximately \$355 per kW of installed capacity (based on 548 MW at ISO).

Calpine initially planned to develop the Osprey Energy Center as a "merchant" plant, consistent with the Commission's need determination order approving the Duke New Smyrna Beach Power

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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.

Project.<sup>2</sup> Calpine's primary business purpose in developing the Osprey Energy Center has been, and continues to be, to provide clean, reliable, cost-effective wholesale power to Florida retail-serving utilities for the benefit of their ratepayers. Accordingly, in keeping with the Supreme Court's opinion in Tampa Electric Co. v. Garcia, Calpine will commit to sell the output of the Project to Florida utilities that serve retail customers in Florida. In endeavoring to fulfill this commitment, Calpine is diligently pursuing discussions (which Calpine believes will lead to active negotiations) toward contractual arrangements committing the output of the Osprey Project to serve the needs of Florida retail electric customers. Calpine is pursuing such discussions with the Florida Municipal Power Agency, Reedy Creek Improvement District, and other Florida utilities that provide service to retail customers. To the extent that Calpine obtains contracts, or other satisfactory evidence (e.g., letters of intent to enter into contracts) of the Project's commitment to serve the needs of Florida retail customers, for the Osprey Project's output, Calpine will submit those documents to the Commission promptly, e.g., as

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<sup>2</sup> In Re: Joint Petition for Determination of Need for an Electrical Power Plant in Volusia County by the Utilities Commission, City of New Smyrna Beach, Florida and Duke Energy New Smyrna Beach Power Company Ltd., L.L.P., 99 FPSC 3:401, ("Duke New Smyrna") rev'd sub nom. Tampa Electric Co. v. Garcia, 2000 WL 422871 (Fla. 2000), motions for rehearing pending (hereinafter Tampa Electric Co. v. Garcia). In Duke New Smyrna, the Commission defined a "merchant" power plant as a plant with no rate base and no captive retail customers. Duke New Smyrna, 99 FPSC at 3:407.

supplemental exhibits to the Petition or as exhibits to Calpine's witnesses' testimonies. To the extent that Calpine does not obtain contracts or other demonstrable commitments (binding on Calpine) to provide the output of the Project to Florida utilities in time for adequate review in the hearing in this case, Calpine requests that the Commission grant the requested need determination subject to a specific condition, on the need determination and on the site certification for the Project, that before construction can commence, Calpine must demonstrate to the Commission that it has appropriate contractual arrangements confirming that the Project's output will be provided to Florida retail-serving utilities for the benefit of their retail customers.<sup>3</sup> If, pursuant to applicable law, Calpine becomes able to develop the Project as a competitive wholesale (or "merchant") facility, in whole or in part, Calpine reserves its right to amend its Petition and the accompanying Exhibits accordingly.

Calpine is filing this Petition and the Exhibits at this time

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<sup>3</sup> The Commission has imposed conditions on its determinations of need in several cases. See, e.g., In Re: Petition for Determination of Need for a Proposed Electrical Power Plant and Related Facilities in Polk County by Tampa Electric Company, 92 FPSC 3:19, 21; In Re: Petition of Florida Power & Light Company to Determine Need for Electrical Power Plant - Martin Expansion Project, 90 FPSC 6:268; In Re: Petition of Seminole Electric Cooperative, Inc., TECO Power Services Corporation and Tampa Electric Company for a Determination of Need for Proposed Electric Power Plant, 89 FPSC 12:262. These cases and their applicability to this need determination proceeding are discussed in detail below in the section titled "Affirmative Determination of Need Subject to Conditions."

in order to expedite the availability of the Project's benefits for Florida's retail-serving utilities and their customers. At substantial expense to itself, Calpine has already completed the necessary environmental evaluations for the Project and has filed the Site Certification Application for the Osprey Project, and the sufficiency review of that application is complete for the most part. Calpine is actively pursuing discussions toward negotiations for power sales contracts. If Calpine were forced to wait until it had contracts in place before even filing this Petition, which could be a period of months, the benefits of the Project to Florida electric utilities and their customers could be lost for the summer of 2003 and the winter of 2003-2004. This delay can be avoided by allowing the need determination process to move forward while the site certification process is moving forward in parallel. Calpine believes that it is likely that it will have contracts for the Osprey Project's output in place before the site certification hearing is held; if so, then effectively no time in the permitting and construction of the Project will have been lost, and Florida can begin enjoying the Project's benefits sooner.

Accompanying this Petition are Exhibits describing Calpine Construction Finance Company, L.P., the Project site, the Project and its operating characteristics, Project economics, the permitting and construction schedules for the Project, the Project's electrical interconnection to the Peninsular Florida grid to accommodate delivery of capacity and energy from the Project to

other utilities in Peninsular Florida, and the Project's fuel supply and fuel transportation agreements. In accordance with Rule 25-22.081, F.A.C., the Exhibits contain the following information:

- A general description of the Osprey Energy Center's load and electrical characteristics, generating capability, and interconnections;
- A description of the proposed Osprey Energy Center, including the size, number of units, fuel type and supply modes, the approximate costs, and the projected in-service date of the Project;
- A statement of the specific conditions and other factors that indicate a need for the proposed electrical power plant, including load forecasts, analyses and supporting documentation of the costs and benefits of the Project, and the model and projections on which they are based;
- A summary discussion of the major available generating alternatives that were evaluated in terms of economics, reliability, long-term flexibility and usefulness, and other relevant factors, including strategic considerations; and
- An evaluation of the adverse consequences that will result if the Project is not brought into service in the second quarter of 2003.

The discussion of viable non-generating alternatives required by Rule 25-22.081, F.A.C. is contained in this Petition. This Petition and the accompanying Exhibits also demonstrate Calpine's

and Peninsular Florida's need for the Project, the cost-effectiveness of the Project to purchasing utilities, to Peninsular Florida as a whole, and to Calpine, the reliability benefits that the Project will provide to Peninsular Florida, the consistency of the Project with Peninsular Florida's need for adequate electricity at a reasonable cost, and the fuel savings, economic, and environmental benefits that the Project will provide to Peninsular Florida electric customers and citizens.

The Site Certification Application ("SCA") for the Project was filed on March 16, 2000. The Florida Department of Environmental Protection ("DEP") issued its notice that the SCA was complete on March 31, 2000. Generally, the other agencies with responsibility for reviewing site certification applications have indicated that the Osprey SCA is sufficient; however, the Southwest Florida Water Management District has asked for additional information, and Calpine has responded, indicating that it will furnish the requested information by June 30, 2000. Pending receipt of this Petition, the Commission has not submitted its comments on the sufficiency of the Osprey SCA. On May 16, 2000, while the Commission voted to hold other need determination dockets in abeyance pending action by the Florida Supreme Court on the pending motions for rehearing in Tampa Electric Co. v. Garcia, the Commission voted not to hold the need determination for the Osprey Project in abeyance, subject to review of this Petition for determination of need. In Re: Petition for Determination of Need



for an Electrical Power Plant in Okeechobee County by Okeechobee Generating Company, L.L.C., In Re: Petition for Determination of Need for an Electrical Power Plant in Lake County by Panda Leesburg Power Partners, L.P., In Re: Petition for Determination of Need for an Electrical Power Plant in St. Lucie County by Panda Midway Power Partners, L.P., and In Re: Petition for Determination of Need for the Osprey Energy Center by Calpine Construction Finance Company, L.P., Docket Nos. 991462-EU, 000288-EU, 000289-EU, and 000442-EI, Order No. PSC-00-1063-PCO-EU (Fla. Pub. Serv. Comm'n, June 5, 2000), slip op. at 6.

Calpine alleges that it is not required to conduct, or to have conducted, a competitive selection process pursuant to Rule 25-22.082, F.A.C. (the "Bidding Rule") for the proposed power plant, because the intent of the Bidding Rule is to protect captive ratepayers from imprudent expenditures by retail utilities. Moreover, the Commission has expressly articulated its vision for the role of competitive wholesale power plants in the context of the Bidding Rule, which is that such power plants will provide alternative power supply options for the retail-serving, investor-owned utilities to which the Bidding Rule is intended to apply.<sup>4</sup> Nonetheless, pursuant to Section 120.542, Florida Statutes, Calpine has simultaneously submitted a petition for waiver of Rule 25-22.082, F.A.C., in conjunction with the filing of this Petition.

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<sup>4</sup> Duke New Smyrna, 99 FPSC 3:401, 434-35.

Pursuant to Rule 25-22.071, F.A.C., on May 1, 2000, Calpine filed a Ten-Year Site Plan with the Commission.

PROCEDURAL BACKGROUND AND INFORMATION

1. The name and address of the Petitioner is as follows:

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

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

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

and

Alycia Lyons Goody, Esquire  
Regional Counsel  
Calpine Eastern Corporation  
The Pilot House, 2<sup>nd</sup> Floor, Lewis Wharf  
Boston, Massachusetts 02110

with courtesy copies 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  
Petition is:

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

**PRIMARILY AFFECTED UTILITY**

4. Calpine Construction Finance Company, L.P., the applicant for the Commission's determination of need herein, is the utility primarily affected by the Project.<sup>5</sup> Calpine expects to sell approximately 506 MW of power from the Project to other utilities and power marketers in Peninsular Florida at each summer peak (i.e., its full rated summer peak capacity excluding duct-firing and power augmentation) and approximately 587 MW of power to other utilities in Peninsular Florida at each winter peak (i.e., its full rated winter peak capacity excluding duct-firing and power augmentation) over the first 10 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 other utilities in Peninsular Florida per year from 2003 through 2012, reflecting an average annual capacity factor of approximately 91

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<sup>5</sup> Other utilities that enter into contractual arrangements to purchase the Project's output will also be primarily affected utilities within the meaning of the Commission's rules and orders. Calpine and those utilities will furnish appropriate descriptive information regarding those utilities at the same time that the contracts or other evidence of the Project's output commitment to serving those utilities' needs are submitted to the Commission.

percent. (The Project's actual output will be proportionately less in 2003, depending on its actual commercial in-service date.)

5. Calpine is an electric utility under Florida law and thus a proper applicant pursuant to Section 403.519, Florida Statutes. Calpine is an electric utility because it is a regulated electric company authorized to engage in the business of generating, transmitting, or distributing electric energy in the state. Fla. Stat. §§ 403.503(4) and (13), Florida Statutes (1999). Calpine is also an electric utility pursuant to Section 366.02(2), Florida Statutes, because it is an investor-owned electric utility which owns, maintains, or operates an electric generation, transmission, or distribution system within the state. Accordingly, Calpine is subject to the Commission's jurisdiction pursuant to several sections of Chapter 366, including the Grid Bill provisions of that chapter<sup>6</sup>, and Section 366.055, which deals with the availability of generating reserves in energy emergencies. As an electric utility, Calpine is also subject to Section 186.801, Florida Statutes, and Commission Rule 25-22.071, Florida Administrative Code, which require the filing of ten-year site plans. Calpine filed its ten-year site plan for 2000 through 2009 on May 1, 2000.

6. Calpine is a public utility under the Federal Power Act, 16 U.S.C.S. § 824(b)(1)&(e) (1994). Calpine will own the Project

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<sup>6</sup> The provisions of Chapter 366, Florida Statutes, referred to as the Grid Bill consist of Sections 366.04(2), 366.04(5), 366.05(7), and 366.05(8); Chapter 74-96, Laws of Florida. Duke New Smyrna, 99 FPSC at 3:411, n.3.

and will market the Project's capacity and associated energy to other utilities under negotiated 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). That rate schedule, which applies to all sales by Calpine, permits Calpine to enter into agreements with willing purchasers of energy and capacity provided by the Project. A copy of the FERC letter order is included in the Appendices to the Exhibits. Calpine is not presently an Exempt Wholesale Generator, nor has it filed for EWG status with respect to the Osprey Project. Since EWG status is relevant only to Calpine's regulatory status under the Public Utility Holding Company Act of 1935 ("PUHCA"), this issue is irrelevant to the Commission's jurisdiction over Calpine and the Osprey Project under its applicable statutes and rules, including the Grid Bill and Section 403.519, Florida Statutes.

7. Calpine projects that all of its sales will be made at wholesale to Florida retail-serving utilities for use in Peninsular Florida.

8. 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.

9. Calpine Construction Finance Company, L.P., a Delaware Limited Partnership, is a wholly-owned subsidiary of Calpine Corporation, a Delaware corporation.

10. 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 73 generating assets (25 existing gas-fired and 19 existing geothermal projects, 14 projects under construction, and 15 projects under development) having a combined nominal capacity of 20,243.50 MW with Calpine Corporation's net ownership totaling 16,947 MW. Calpine Corporation's 25 operating gas-fired generating plants are located in California (7 plants), New Jersey (3 plants), New York (4 plants), Pennsylvania (2 plants), Texas (3 plants), and 1 plant each in Florida, Illinois, Massachusetts, Oklahoma, Virginia and Washington. Calpine Corporation's geothermal power generating units have approximately 880 MW of capacity.

#### **THE PROPOSED POWER PLANT**

11. The proposed Osprey Energy Center will be a natural gas-fired, combined cycle generating plant with 527 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 506 MW and its rated winter capacity will be 587 MW, also without duct-firing and power augmentation. With duct-firing and power augmentation, the Osprey Project's maximum rated output would be 588 MW under summer peak conditions and 675 MW under winter peak conditions.<sup>7</sup> 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<sub>x</sub> combustion technology and a selective catalytic reduction ("SCR") system to minimize emissions of nitrogen oxides ("NO<sub>x</sub>"). 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

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<sup>7</sup> Because of the fact that the Osprey Project's additional capacity available from duct-firing and power augmentation will likely only be used during relatively extreme seasonal peak conditions, Calpine believes it is unlikely that it will be able to execute contracts for that capacity. Calpine is willing to enter into contracts for that capacity and to commit that capacity, like the rest of the Project's capacity, to meeting the needs of Florida retail-serving utilities. If Calpine does not obtain advance contracts for this additional capacity, Calpine would respectfully request that the Commission grant an affirmative determination of need for the Project, recognizing that this additional capacity is in the nature of supplemental or reserve capacity. Calpine is also willing to commit to make this capacity available to Florida retail-serving utilities so long as those utilities are not authorized to sell the power out of Florida at a profit; that would be plainly inconsistent with the public interest and with the logic of the Supreme Court's opinion in Tampa Electric Co. v. Garcia, as well as plainly unfair to Calpine.

Plant, located approximately one mile east of the Project site, and on-site groundwater wells. The Project will use wet cooling towers to condense steam back to water for reuse in the HRSGs and STG.

12. 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 2, 3, and 4 of the Exhibits accompanying this Petition. The site is a non-producing citrus grove and is presently unused. Access to the site will be from West Derby Avenue on the site's northern boundary. 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.

13. 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 13, 14, and 15 of the Exhibits accompanying this 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. Natural gas fuel supply for the Project will be provided to Gulfstream receipt points in the Mobile Bay area by natural gas marketing companies and producers. Calpine will procure its natural gas supply for the Osprey Energy Center through an optimized combination of short-term contract purchases, long-term contract purchases, and spot market purchases. Specifically, Calpine will purchase natural gas from producers and marketing companies that have access to those natural gas treatment plants, processing plants, and interstate natural gas transmission systems with supply located in the vicinity of Mobile Bay, Alabama, and Pascagoula, Mississippi. Gulfstream plans to have interconnections with the Mobile Bay Pipeline (Koch), the Destin Pipeline, the Dauphin Island Gathering Pipeline, the Mobile Bay Processing Partners' Plant (DIGS Plant), the Williams Plant, and the Mobil Mary Ann Plant. A copy of the Precedent Agreement is provided as Appendix B to the Exhibits.

14. 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. The studies 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 will be determined in accordance with TECO's open access transmission tariff. TECO is currently conducting the required transmission studies pursuant to its transmission tariff, and accordingly, the specific transmission upgrades have not been determined at this time. These upgrades may potentially include: (a) upgrading the conductor (to accommodate more power) and poles (to accommodate the heavier conductor) on a 1.4 mile section of the Recker to Crews Lake transmission line; (b) re-conductoring the 6.3-mile Crews Lake to Pebbledale line, and upgrading the poles on approximately 3.2 miles of that line; and (c) upgrading the transformation capacity at TECO's Ariana Substation. The Ariana upgrades, which will be negotiated and implemented pursuant to TECO's transmission tariffs, may include adding cooling capacity to the existing 150 MVA transformer at the substation, adding another 150 MVA transformer, or other measures. Calpine expects to be represented on the Florida Reliability Coordinating Council.

15. 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. (The 6,800 Btu/kWh heat rate is based on assumed degradation from the "new and clean" heat rate of the Project, which is 6,710 Btu/kWh. See Table 3 of the Exhibits.) The Project will utilize dry low-NO<sub>x</sub> combustion technology and SCR to control NO<sub>x</sub> 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. Operation of the Project is likely to result in measurable reductions in emissions of SO<sub>2</sub>, CO<sub>2</sub>, NO<sub>x</sub>, 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 gas-fired units, and (c) units that do not include the types of pollution controls being utilized by the Project. Table 17 presents summary data on the projected reductions in SO<sub>2</sub> and NO<sub>x</sub> emissions that will result from adding the Osprey Project into Peninsular Florida's power supply system. Generally, over the study period, the Project is expected

to reduce total SO<sub>2</sub> emissions from producing Peninsular Florida's electricity supply by 5 to 17 tons per year and to reduce total NO<sub>x</sub> emissions by 3.5 to 7.5 tons per year.

16. The specific conditions that indicate a need for the Osprey Energy Center are Peninsular Florida's need for additional efficient, cost-effective generating capacity for system reliability and integrity and for adequate electricity at a reasonable cost, the general public need for the Project's economic benefits with respect to the suppression of wholesale (and thus retail) electricity prices, and need for the Project's environmental benefits. The need is immediate. Analyses of these conditions and the historical and forecasted Peninsular Florida summer and winter peaks, number of customers, net energy for load, and load factors are included in the Exhibits. 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 are set forth more fully below and in the Exhibits.

17. 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. See Tables 20 and 21 of the 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.

18. 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 other utilities. 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 to Florida by using less primary fuel to produce a given quantity of electricity. Tables 16.A and 16.B shows projected reductions in fuel consumption, by fuel type, that will result from the Osprey Project's addition to the Peninsular Florida power supply system. (If the Project were constructed instead of another utility's planned but uncommitted combined cycle unit, then the fuel reductions could be expected to be relatively small, generally deriving from the difference between the Project's heat rate and

the heat rate of the resources that the Project enabled the purchasing utility to avoid.) 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 (1999). 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 17 shows the reductions in emissions of SO<sub>2</sub> and NO<sub>x</sub> that are projected to result from the addition of the Osprey Project into the Peninsular Florida power supply system.

#### **NEED FOR THE PROPOSED POWER PLANT**

19. Calpine fully expects to demonstrate the need for the Osprey Energy Center to meet the specific needs of utilities that are responsible for serving retail customers in Florida. As stated elsewhere herein, Calpine will furnish evidence that the Project's output is committed to such entities as soon as possible, but in no case (other than an intervening change in applicable law) will Calpine commence construction of the Project without having demonstrated utility-specific need to the Commission. The Project will be shown to be needed by those purchasing utilities. The Project is needed by Calpine to participate in the Peninsular

Florida competitive wholesale power market. The Project is also needed by Peninsular Florida for system reliability and integrity and for adequate electricity at a reasonable cost. In addition, the Project is needed to provide the energy conservation and environmental benefits described herein. The "need for power" issue often encompasses several aspects of need.<sup>8</sup> The following discussion addresses in detail the manner in which the Project meets these needs.

A. Need For The Project.

20. Calpine will demonstrate that the Project is needed to meet the specific needs of Florida utilities that have responsibility for providing electricity to retail customers. Part of this demonstration will naturally include a demonstration that the Project will enhance such purchasing utilities' reliability and that the Project will be the most cost-effective alternative available to those utilities. Of course, since the utilities that will purchase the Project's output cannot be forced to enter into contracts to do so, the Commission should expect that these utilities will only enter into contracts that are cost-effective to them and to their retail customers. While Calpine has not at this time entered into binding commitments to provide power to such entities, Calpine is actively pursuing discussions with a number of

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<sup>8</sup> See In re: JEA/FPL's Application of need for St. John's River Power Park Units 1 and 2 and related facilities, 81 FPSC 6:220, 221.

potential purchasing utilities. Table 13 presents data from current ten-year site plans that show that seven utilities have identified combined needs over the 2002-2009 period for approximately 9,000 MW of capacity for which no permits have been issued and for which no commitments are in hand. Calpine believes that it will be able to enter into appropriate agreements for the Osprey Project's output to serve part of that identified but uncommitted capacity need. Calpine also believes that it will be able to enter into agreements that will assure economic, cost-effective power supply to those utilities that elect to purchase from the Osprey Project. Tables 14.A and 14.B of the Exhibits shows that there is currently approximately 43,400 MW of gas-fired and oil-fired capacity in Florida that is less efficient than the Project. Table 14 also shows 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. The Project is also more efficient, in a pure energy efficiency sense, than all of the coal-fired and nuclear generation resources in Florida; in some circumstances, the Project will even be cost-effective as compared to coal-fired generation.

21. If, pursuant to applicable law, Calpine is able to develop part or all of the Project's capacity as "merchant" capacity, then the Project will provide reliable, competitively priced, environmentally clean power in the Peninsular Florida wholesale market without risk to Florida's retail electric



customers. Both the FERC and the Commission have recognized the benefits of competitive wholesale power.<sup>9</sup> Even in the case where the Project is developed with committed contractual arrangements in hand, it is likely that ratepayer risk will be less than with conventional rate-based power plants, because (a) the purchasing utilities will only enter into contracts with Calpine that are cost-effective to them and their customers, (b) pursuant to those contracts, ratepayers will likely only pay for capacity and energy that they actually use, and (c) such contracts are likely to be shorter in duration than the typical 30-year book lives of new power plants, thereby significantly reducing ratepayer risk.

**B. Need For Electric System Reliability and Integrity.**

22. As described above, Calpine is fully committed to demonstrating the need for the Osprey Energy Center based on the specific needs of Florida retail-serving utilities and will, as soon as practicable, furnish the necessary evidence of contractual commitments and cost-effectiveness to the utilities that will be

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<sup>9</sup> As expressed in Order No. 888 regarding transmission access, the FERC's goal is to ". . . remove impediments to competition in the wholesale bulk power marketplace and to bring more efficient, lower cost power to the nation's electricity consumers." Order 888, 61 Fed. Reg. 21,539 (1996). The Commission has also recognized that a competitive wholesale electricity market is enhanced by competitive wholesale power plants like the Osprey Energy Center: "Merchant plants increase wholesale competition thereby in theory lowering wholesale electric prices from what they otherwise may be." Duke New Smyrna, 99 FPSC at 3:438. In a real sense, Florida needs the Project in order to obtain the benefits of competitive wholesale power for the State's electric customers and for Florida's economy generally.

purchasing the Project's output. The following discussion addresses reliability needs.

23. The Osprey Energy Center is consistent with and meets Peninsular Florida's needs for generating capacity to maintain system reliability and integrity. According to the 1999 Regional Load & Resource Plan prepared by the Florida Reliability Coordinating Council and dated July 1999 ("1999 FRCC Regional Plan"), Peninsular Florida needs more than 10,000 MW of new installed capacity in order to maintain winter reserve margins generally between 6 percent and 18 percent without exercising load management and interruptible resources from the winter of 2000-2001 through the winter of 2008-2009. If the Project is built in addition to currently planned units, and committed to serving Florida utilities, as proposed by Calpine, the Project will improve the winter reserve margin by about 1.3 percent in the winter of 2003-2004, from 17.13 percent without the Project to 18.47 percent with the Project's additional 587 MW. The Project will provide similar reserve margin improvements in subsequent years.

24. The foregoing clearly demonstrates that there is a significant and substantial reliability need for new generating capacity in Peninsular Florida. Additionally, Table 13 presents data from current ten-year site plans that show that seven Florida utilities are projecting the need for approximately 9,000 MW of additional capacity over the plans' horizon for which no commitment

has yet been made. The Project may contribute to meeting these needs by providing firm capacity, if retail-serving utilities contract for the Project's output on a firm capacity and energy basis. If, pursuant to such a contract, the Project is built in lieu of other planned utility resources, it will contribute to the purchasing utilities' and Peninsular Florida's reliability in basically the same way as those "avoided" resources would have. If the Project is contractually committed to one or more retail-serving utilities but built in addition to other planned utility resources, then it will provide additional enhancement to those utilities' and Peninsular Florida's system reliability. Even if the Project's capacity remains uncommitted, e.g., if it is developed as "merchant" plant, it will still contribute to Peninsular Florida reliability by virtue of its presence and availability to serve Peninsular Florida load.

25. Under any scenario in which the Osprey Energy Center is built in addition to other planned utility resources, the Project can be expected to provide an additional 587 MW of net capacity (675 MW with duct-firing and power augmentation) to Peninsular Florida utilities during winter peaking conditions and an additional 506 MW (588 MW with duct-firing and power augmentation) of additional capacity during summer peaking conditions. 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 82 MW in the summer and an additional 88 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.

**C. Need for Adequate Electricity at a Reasonable Cost.**

26. As described above, Calpine is fully committed to demonstrating the need for the Osprey Energy Center based on the specific needs of Florida retail-serving utilities and will, as soon as practicable, furnish the necessary evidence of contractual commitments and cost-effectiveness to the utilities that will be purchasing the Project's output. Peninsular Florida's Net Energy for Load is projected to grow from 196,094 gigawatt-hours ("GWH") in 2000 to 247,742 GWH in 2012, an annual average growth rate of approximately 2.5 percent per year. See Table 5 of the Exhibits. The Osprey Energy Center meets Peninsular Florida's need for adequate electricity at a reasonable cost. Most new capacity proposed by other Florida utilities is similar gas-fired combined

cycle capacity. See Table 12 of the Exhibits; see also FRCC 1999 Regional Plan. The direct construction cost and heat rate of the Project compare favorably to those of other proposed similar power plants in Peninsular Florida. Because no utilities or retail customers are subject to being required to pay for the costs of the Project, and because other Peninsular Florida utilities can reasonably be expected to buy power from the Project only when it is cost-effective, as compared to other supply sources,<sup>10</sup> the Project is also necessarily consistent with and meets Peninsular Florida's need for adequate electricity at a reasonable cost.

27. Analyses of the Peninsular Florida power supply system prepared using PROMOD IV® show that the Osprey Project will operate at annual capacity factors ranging from approximately 87 percent to approximately 94 percent over the 2003-2012 analysis period. (The annual differences are primarily due to the timing of the Project's major maintenance schedule, with the lower capacity factors occurring in years when a major overhaul is performed and the higher capacity factors occurring in years when only minor

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<sup>10</sup> This holds true whether the Project is operated on a competitive wholesale (or "merchant") basis or, as planned by Calpine in this instance, developed with advance contractual commitments. The only difference is a shift in the frame of reference: in the merchant plant context, the frame of reference is generally short-term contracts entered into once the plant is built, whereas in this context, the frame of reference is the comparison of purchasing power from the Osprey Project to the costs of other purchases or self-build options in advance. In either scenario, the purchasing utility will only make the purchase if it is cost-effective as compared to its alternatives.

scheduled maintenance is performed.) The PROMOD IV® analyses show that the Project will generally reduce the average production cost for Peninsular Florida by \$0.51 to \$0.91 per MWH for each year of the analysis period.<sup>11</sup> See Table 18 of the Exhibits. This translates to overall cost savings of \$100 million to \$200 million per year, with a total net present value of approximately \$803 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 14.B of the Exhibits.

28. If, pursuant to applicable law, the Osprey Project is developed as a competitive wholesale power plant, it will also be cost-effective for the purchasing utilities and their retail customers. Competitive wholesale power plants like the Osprey Project differ from traditional "rate-based" plants in that the costs of a rate-based plant are recovered through rates charged to the utility's captive customers. If, after a rate-based plant is constructed, lower cost power becomes available, the utility nevertheless remains entitled to recover the costs of its plant through its rates. Hence, the utility's ratepayers, rather than

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<sup>11</sup> These values represent only the reduction in production costs for Peninsular Florida. They do not include the additional value that the Project will likely provide by reducing the cost of ancillary services in Peninsular Florida.

its shareholders, bear the risks associated with obsolescence. Similarly, absent a finding of imprudence, a utility is permitted to recover the fixed and operating costs of its rate-based plant, even if these costs are higher than originally projected or if the plant fails to operate as well as projected.

29. In contrast, a competitive wholesale power plant has no rate base and no captive customers. A competitive wholesale plant will simply offer its capacity and energy to potential wholesale customers, who are free to purchase or decline to purchase capacity and energy offered by competitive wholesale suppliers. An economically rational purchasing utility will only enter into an agreement to purchase electric capacity or energy from a competitive wholesale plant if the costs of that capacity or energy are lower than the costs of alternatives otherwise available to the utility, e.g., generation from its own power plants or purchases from others. If the cost of power from the competitive wholesale plant is higher than the costs of other alternatives, a purchasing utility will simply choose not to buy the competitive plant's output. In such circumstances, the unrecovered costs of the competitive plant will be borne by the plant's owners, and not by any customer. The same result will occur if the competitive plant incurs cost overruns or fails to operate as efficiently or reliably as projected -- the competitive plant's owners, rather than any ratepayers, bear all of the capital, operating, and market risks associated with the power plant. Consequently, if the competitive

plant's economics are favorable, other utilities and power marketers will purchase its output and enjoy cost savings. If the plant turns out not to be economically preferred, customers will incur no financial harm. For these reasons, a competitive wholesale plant can only benefit other utilities and their customers.

**D. Strategic Considerations.**

30. The Osprey Energy Center is consistent with strategic factors that may be considered when building a power plant, not only from Calpine's perspective, but also from the perspective of purchasing utilities and from the perspective of the State as a whole. From the perspective of utilities that purchase the Project's output, the opportunity to enter into contracts with relatively short terms, e.g., 3 to 10 years, enhances flexibility and reduces long term capital cost exposure as compared to a conventional rate-based power plant. Similarly, the purchasing utilities and their ratepayers will also enjoy reduced exposure to the risk of obsolescence and the virtually certain elimination of the risk of cost overruns, both in construction and in operation.

31. 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.

32. 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. 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, for 2004, the PROMOD IV® analyses prepared for Calpine show that the average heat rate for all FRCC power supply will be reduced by 31 to 48 Btu per kWh over the analysis period. For example, in 2008, the Osprey Project's operations will reduce the average heat rate for all FRCC power supply from 8,552 Btu per kWh without the Osprey Project to 8,516 Btu per kWh with the Project. See Table 15 of the Exhibits.

#### **COST-EFFECTIVENESS**

33. The Osprey Energy Center is the most cost-effective generation alternative available to the utilities that will purchase the Project's output and to Calpine for meeting its

projected wholesale sales obligations. The Project is also consistent with the future power supply needs of Peninsular Florida. 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.

A. Cost-Effectiveness to Purchasing Utilities.

34. As explained above, Calpine and the utilities purchasing the Osprey Project's output will demonstrate both the commitment of the Project's output to meeting those purchasing utilities' needs and the cost-effectiveness of the purchase arrangements. The Project will be the most cost-effective alternative to those purchasing utilities because Calpine will only be able to sell the Project's power to other utilities if and when utility purchasers determine that such purchases are cost-effective relative to those utilities' alternative power supply options, e.g., self-generation or other purchases. In addition, the Commission's ongoing regulatory oversight of utilities' fuel and purchased power costs ensures that Florida's ratepayers are responsible only for reasonable and prudent expenses. In other words, not only will the market ensure that the subject purchases are cost-effective, the Commission's ongoing regulation will similarly ensure that purchases from the Project are prudent, i.e., cost-effective.

35. Since the savings resulting from cost-effective purchases

from Calpine will be passed directly through to retail customers through the purchasing utilities' fuel and purchased power cost recovery charges, the Project will also provide cost-effective power to those utilities' retail customers. Unlike the regulatory treatment afforded conventional rate-based power plants, no retail (or wholesale) customers can be required to bear the Project's capital or other costs. Rather, retail customers can only be asked to pay for the cost of power from the Project when their retail-serving utility elects to buy power from the Project, and these purchases will occur only when such transactions are cost-effective to the purchasing utility, i.e., when the Project offers power that costs less than what is available elsewhere. This holds true for longer-term (e.g., 3 to 10 year) contracts as well as for shorter-term purchases.

**B. Cost-Effectiveness to Peninsular Florida.**

36. The Project will be a cost-effective power supply resource for Peninsular Florida. Projections of the Project's operations prepared for Calpine show that the Project will operate, economically, at annual capacity factors of approximately 87 to 94 percent from 2003 through 2012. This result is not surprising because the Project is expected to operate more cost-effectively, in terms of incremental generation costs, than approximately 35,000 MW of existing generating capacity in Peninsular Florida. Moreover, these high projected annual capacity factors are not

surprising in light of the fact that most new capacity proposed for Peninsular Florida (and for the State of Florida) is gas-fired combined cycle capacity. The presence of the Project, with its high efficiency, is expected to suppress wholesale power prices in Florida below what they would otherwise be. As a competitive wholesale plant, the output of which no utility is obligated to buy, except by choice, the Project will minimize power supply costs; it will not -- indeed cannot -- increase power supply costs above the cost of alternatives.

37. Power produced by the Project will be sold in the wholesale market to other utilities for use in Peninsular Florida. Calpine projects that all of the Project's output over the 2003 through 2012 period is expected to be sold to other utilities in Peninsular Florida (i.e., within the FRCC region), on the basis of the relative economics of the Project and other Peninsular Florida generation facilities. Moreover, generation costs are generally lower in Georgia than Florida. For example, the PowerDAT data base maintained by Resource Data International and frequently reported in Public Utilities Fortnightly, shows that in 1998, the average generation cost (fuel plus non-fuel operation and maintenance costs) in the Southeastern Electric Reliability Council ("SERC") region, which includes the Florida Panhandle, Georgia, Alabama, North Carolina, South Carolina, Virginia, Tennessee, and parts of Mississippi and Kentucky, was \$17.40 per MWH, while for the same

year the average generation cost in Peninsular Florida was \$23.60 per MWH. For the period January through September 1999, the average generation cost in SERC was \$17.70 per MWH, while for the same period the average cost in Peninsular Florida was \$25.80 per MWH, about 45 percent higher than in the neighboring SERC region. 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 all potential suppliers.

38. Even if the Project were not needed to maintain reliable service to Florida electric customers (which it is), the Commission should grant the requested need determination because the Project will necessarily provide cost-effective power to utilities that provide retail service in Florida.

39. The Project is also demonstrably cost-effective based on a comparison of the Project's construction cost and heat rate to the costs and heat rates of other proposed units. (This analysis is based on the reasonable assumption that the cost of natural gas to the Project would be similar to the cost of natural gas to other proposed power plants.) As previously stated, the direct construction cost of the Project is projected to be approximately \$194.8 million. This construction cost equates to approximately \$355 per kW of installed capacity (based on 548 MW output at ISO). The Project's full load net heat rate is projected to be 6,800 Btu

per kWh (HHV of natural gas) at ambient site conditions. Both the Project's direct construction cost and its heat rate compare favorably to those of other new gas-fired combined cycle power plants proposed for Florida; only the proposed Cane Island 3 unit of the Florida Municipal Power Agency and the Kissimmee Utility Authority, the proposed Duke Energy New Smyrna Beach Power Company project, and the proposed Okeechobee Generating Company project have similar projected construction costs and heat rates. Comparative construction cost and heat rate data for the Project and for other proposed power plants in Florida is included in Table 12 of the Exhibits.

C. Cost-Effectiveness to Calpine.

40. As described more fully in the Exhibits, Calpine has considered various generating technologies and determined that the proposed combined cycle power plant represents the most cost-effective alternative for Calpine to meet its projected wholesale power sales commitments. Screening analyses prepared for Calpine (see Table 21 of the Exhibits) indicate that over a wide range of capacity factors, gas-fired combined cycle technology is the most cost-effective alternative in terms of minimum total production cost. Additionally, comparing the estimated prices that Calpine would receive from selling the Osprey Project's output if it were sold at the Peninsular Florida marginal energy cost (see Table 18 of the Exhibits), without any revenues from sales of firm capacity

or ancillary services, to the Project's estimated dispatch cost as modeled in the PROMOD IV® runs prepared for Calpine (see Tables 14.A and 14.B of the Exhibits, which presents the modeled dispatch costs for all Peninsular Florida units for 2003 and 2008), shows that even under this conservative assumption (i.e., no revenues from sales of firm capacity or ancillary services), the Project will realize positive margins. This confirms that if the Project is built, it will operate at relatively high capacity factors as indicated by the PROMOD IV® analyses.

**AFFIRMATIVE DETERMINATION OF NEED SUBJECT TO CONDITIONS**

41. As explained above, Calpine is committed to providing the Osprey Project's output to Florida utilities with responsibility for serving retail customers. Accordingly, Calpine is diligently pursuing discussions toward contractual arrangements that will confirm that the Osprey Project's output is committed to Florida retail-serving utilities. Calpine is optimistic that it will be able to present satisfactory evidence of this commitment for part or all of the Project's output in time for this evidence to be adequately evaluated and tested at the hearings in this proceeding (which Calpine expects to be held in October 2000). To the extent that Calpine does not have satisfactory evidence that the full output of the Project is appropriately committed by those hearing dates, Calpine requests that the Commission grant an affirmative determination of need subject to the condition that, before

construction of the Project may begin, Calpine must demonstrate to the Commission that the Project's output is committed to Florida retail-serving utilities and that the purchase and sales arrangements are cost-effective to the purchasing utilities.

42. Calpine is filing this Petition now because the Osprey Project is already well along in the site certification process and because delay (e.g., the time that it might take Calpine to procure actual power sales agreements) will impose real and significant costs on Florida, on the state's electric customers, and on Calpine. Specifically, a delay in the need determination proceeding will correspondingly delay the site certification process, which will delay the construction and operation of the Project. Delay of a few months will cost the State, and the customers of the utilities that will purchase the Project's output, the availability of a needed, cost-effective power supply resource for at least the summer of 2003, and likely for the winter of 2003-2004 as well, and will also likely cost Calpine close to a year of business opportunity from operating the Project.

43. The Commission has clearly explained its authority to impose conditions on affirmative determinations of need in In Re: Petition of Florida Power & Light Company to Determine Need for Electrical Power Plant - Martin Expansion Project, 90 FPSC 6:268 "Martin 3&4"). In that case, the Commission stated the following:

Pursuant to Section 403.519, Florida Statutes, the Commission has the inherent authority to place conditions on need



determinations supported by the record developed in the proceeding. Such conditions are similar in effect to those placed on the applicants by the Department of Environmental Regulation (DER) or any of the other statutory parties to proceedings under the Power Plant Siting Act (Sections 403.501-.517, Florida Statutes). A violation of any of the conditions placed upon a need determination would result in appropriate action being taken by this agency.

Martin 3&4, 90 FPSC 6:282.

44. The Commission has imposed conditions on its determinations of need in several cases. For example, in the need determination proceeding for Tampa Electric Company's ("TECO") Polk County coal gasification combined cycle power plant, the Commission conditioned its approval of the plant's construction on TECO's obtaining a specified \$120 million grant from the U.S. Department of Energy. In Re: Petition for Determination of Need for a Proposed Electrical Power Plant and Related Facilities in Polk County by Tampa Electric Company, 92 FPSC 3:19, 21. This precedent is particularly significant and directly applicable here because it represents a condition on the Commission's affirmative determination of need that carried all the way through the site certification process and that had to be satisfied before construction of TECO's plant could begin. The Commission was explicit on this point, stating as follows: "We approve the plant's construction on the condition that TECO does receive the \$120 million grant from the Department of Energy to help defray the

costs of the Project." Id. at 21. The Commission further clarified its approval by stating that "[b]ecause of the importance of the DOE grant to the cost-effectiveness of the project, however, we must condition our approval on TECO's receipt of the \$120 million grant with no requirement that TECO repay any part of the \$120 million grant." Id. at 28.

45. This is exactly the type of affirmative determination of need, subject to a specified condition subsequent, that Calpine is seeking in this case (that is, in the event that Calpine does not have satisfactory evidence that the Project's output is committed to Florida retail-serving utilities before the hearing in this docket). This precedent is also significant in that the condition imposed in the Commission's affirmative determination of need was the subsequent occurrence of a certain economic event before construction could begin.

46. The Commission also imposed several specific conditions on its order determining need for the Hardee Power Station, including the following: (a) that the terms and conditions of the wholesale contracts identified by Seminole, Tampa Electric Company, and TECO Power Services had to be approved by FERC as specified in those contracts, (b) that TECO had to construct a specified transmission line at a cost less than or equal to the cost shown in the record of the proceeding before the Commission, and (c) that TECO Power Services had to construct a natural gas lateral at a cost no greater than that shown in the record. In Re: Petition of

Seminole Electric Cooperative, Inc., TECO Power Services Corporation and Tampa Electric Company for a Determination of Need for Proposed Electric Power Plant, 89 FPSC 12:262, 272.

#### ENERGY CONSERVATION

47. As a competitive wholesale utility selling electricity only at wholesale, Calpine does not engage directly in the implementation of end-use energy conservation programs. Moreover, Calpine is not required to have conservation goals pursuant to Section 366.82(2), Florida Statutes. The utilities to whom Calpine will sell the Osprey Project's output generally do have conservation programs and conservation goals approved by the Commission, however, and Calpine takes as given that those utilities' power supply needs are net of the effects of those conservation programs. Moreover, 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, 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 (1999). 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,<sup>12</sup> better

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<sup>12</sup> Table 14.B of the Exhibits shows the heat rates for all Peninsular Florida power plants as they were included in the PROMOD

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, to the extent that the Project displaces oil-fired generation, it will contribute to the express statutory goal of conserving expensive resources, especially petroleum fuels. Fla. Stat. §§ 366.81 & 366.82(2) (1999). Tables 16.A and 16.B of the 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.

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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.

48. 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**

49. The 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.<sup>13</sup> The transmission interconnection, switching equipment, and transmission lines are described in the Exhibits. Transmission system impact studies commissioned independently by Calpine indicate that, with certain transmission upgrades (described in Paragraph 14 above), the interconnection and the Peninsular Florida transmission grid will support deliveries of the Osprey Project's output to any other utilities in Peninsular Florida without materially burdening the transmission system and without causing any violations of any constraints or contingencies in the grid. As noted above, TECO is presently conducting separate transmission studies pursuant to its transmission tariff, and the actual upgrades, if any, will be determined pursuant to TECO's tariff following the completion of these studies.

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<sup>13</sup> 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.

### ASSOCIATED FACILITIES

50. 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; those upgrades would likely include upgrading existing transmission poles and conductor. The Project's natural gas fuel will be delivered over 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.<sup>14</sup> The pipeline pressure at the Calpine site is guaranteed by Gulfstream to be 650 psig.

### CONSEQUENCES OF DELAY

51. Delaying the construction and operation of the Osprey Energy Center will result in lower reserve margins for Peninsular Florida for each month that the Project's construction and operation are delayed. Such delays will in turn increase the probability that the power supply resources available to Peninsular Florida will be insufficient to maintain reliable service. For every day that the Project's operation is delayed, the probability

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<sup>14</sup> 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.

of brownouts and blackouts of both firm and interruptible customers in Peninsular Florida is higher than it would be with the Project in operation.

52. Delaying the construction and operation of the Project will also delay the availability of cost-effective power to the other utilities in Peninsular Florida and their retail customers. Calpine anticipates sales of approximately 4.5 million MWH to other Peninsular Florida utilities in 2004, the Project's first full year of projected operation, and between 4.1 million and 4.5 million MWH per year in following years, depending primarily on the Project's maintenance schedule. Calpine's projections reflect the realistic assumption that such sales will be made only when cost-effective to the purchasing utilities. Thus, while actual purchase prices will be determined in the contracts between Calpine and its wholesale customers, the output of the Project can reasonably be expected to provide significant power cost savings to Calpine's wholesale customers and to their retail customers (again reasonably assuming that such savings are passed through to those retail customers). Delaying the Project's operation will cost those customers, and the State of Florida, these savings.

53. Delay also costs the State the fuel savings that the Project would provide in terms of reduced primary fuel consumption for the same amount of electricity produced. According to projections prepared for Calpine, the Project is expected to displace approximately 1.6 million to 2.5 million MWH per year of

power produced by oil-fired and coal-fired generation units in each year from 2004 through 2012 (the last year of the analysis period). The Osprey Project will also displace generation from less efficient gas-fired generating units. As shown in Table 15, 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.

54. Delaying the Project's construction and operation will also deprive the State of the environmental benefits of the Project's operations. More specifically, delaying the Project will postpone the realization of the reductions in air pollutant emissions that will result from the significantly greater efficiency of the Project, and from its use of clean natural gas fuel, as compared to the efficiency and emission rates of the power supply resources whose output will be displaced by the Project. Calpine's analyses indicate that the Project would displace approximately 1.6 million to 2.5 million MWH of electric energy produced from oil-fired and coal-fired generation facilities in each year from 2003 through 2012. (The Osprey Project will also displace generation from less efficient gas-fired generating units.)

#### **DISPUTED ISSUES OF MATERIAL FACT**

55. Calpine believes that the following are likely to be disputed issues of material fact in this proceeding:



- a. Whether the Osprey Energy Center is needed, taking into account Peninsular Florida's need for system reliability and integrity;
- b. Whether the Osprey Energy Center is needed, taking into account Peninsular Florida'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 those utilities that enter contracts to buy the Project's output, to meet Calpine's need for generating resources, and to meet Peninsular Florida's needs for electric capacity and energy;
- d. Whether there are conservation measures reasonably available to Calpine to mitigate the need for the Osprey Energy Center; and
- e. Whether the Osprey Energy Center is consistent with the public interest.

56. Based on the Commission's consideration of these issues, the Commission will decide the ultimate issue presented, i.e., whether to grant Calpine's requested determination of need for the Osprey Energy Center. As set forth above, Calpine alleges that the Osprey Energy Center is needed within the meaning of the statute, that it is the most cost-effective alternative to meet Calpine's and Peninsular Florida's power supply needs, that there are no conservation measures available to Calpine to mitigate the need for

the Project, and that the Osprey Project is consistent with the public interest, and the best interests of Florida and its electric customers.

**STATUTES AND RULES THAT ENTITLE CALPINE TO RELIEF**

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

**ULTIMATE FACTS THAT ENTITLE CALPINE TO RELIEF**

58. The ultimate facts that entitle Calpine Construction Finance Company, L.P. to the relief requested are:

- a. that the Osprey Energy Center is needed, taking into account Peninsular Florida's need for system reliability and integrity;
- b. that the Osprey Energy Center is needed, taking into account Peninsular Florida's need for adequate electricity at a reasonable cost;
- c. that the Osprey Energy Center is the most cost-effective alternative available to meet Calpine's need for generating resources, Peninsular Florida's need for electric capacity and energy, and the capacity and energy needs of those utilities that will purchase the Project's output;
- d. that the Osprey Energy Center will result in measurable reductions in the use of primary fuel for

electricity generation in Florida and will also help to conserve expensive energy resources, particularly petroleum fuels; and

e. that the Osprey Energy Center will promote the public interest of Florida and its citizens and electric customers.

The specific ultimate facts which entitle Calpine to relief are alleged in the Introduction and in paragraphs 1 through 54 of this Petition for Determination of Need for an Electrical Power Plant.

#### CONCLUSION

59. The proposed Osprey Energy Center meets the needs of Peninsular Florida for system reliability and integrity, and for reliable electricity at a reasonable cost. The Project will contribute meaningfully to the reliability of electric supply in Peninsular Florida, enhancing reserve margins in 2003 and thereafter.

60. The Project will necessarily be cost-effective to other wholesale purchasers and their retail customers, because the costs of the Project will not be included in rate base, and because no utility nor any electric customer will be obligated, other than by choice, to purchase the Project's output. Wholesale purchasers will buy the Project's power only if it is cost-effective when compared to other alternatives. The Osprey Project's operation will significantly reduce wholesale power supply costs for Peninsular

Florida.

61. Calpine is willing to commit, as a condition of the Commission's determination of need and as a condition of site certification, the Project's output to serving the needs of Florida utilities. Calpine will demonstrate this commitment (or commitments) to the Commission as soon as practicable; to the extent that Calpine does not have contracts or other satisfactory evidence of commitments for the Project's full output by the time of the hearing in this proceeding, Calpine respectfully asks that the Commission grant an affirmative determination of need conditioned upon Calpine's demonstrating that the Project's output is committed to Florida utilities with responsibility for serving retail customers.

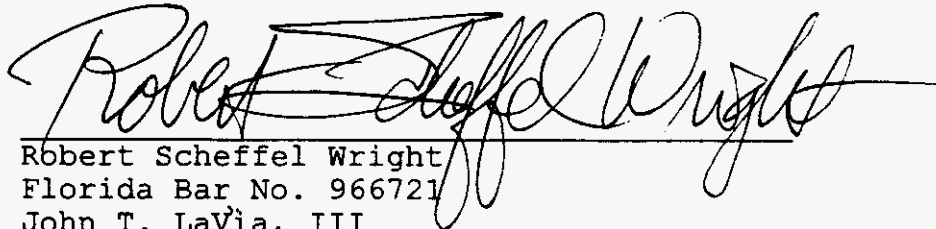
62. Finally, the Project is consistent with, and promotes the goals of, the Florida Energy Efficiency and Conservation Act. Accordingly, the Project is consistent with the public interest in that it will enhance energy efficiency and conserve primary fuels, as well as provide environmental benefits associated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

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

**RELIEF REQUESTED**

WHEREFORE, Calpine Construction Finance Company, L.P., respectfully requests the Commission to enter its order GRANTING this Petition for an affirmative determination of need for the proposed Osprey Energy Center, as described herein.

Respectfully submitted this 19th day of June, 2000.



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