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March 22, 2002

-VIA HAND DELIVERY-

Ms. Blanca S. Bayó, Director Division of the Commission Clerk and Administrative Services Florida Public Service Commission 2540 Shumard Oak Blvd. Tallahassee, FL 32399-0850

020263-EI

Docket Nos. 02___- EI, 02 ___-EI Re:

> In re: Petition To Determine Need For an Electrical Power Plant in Martin County by Florida Power & Light Company

In re: Petition To Determine Need For an Electrical Power Plant in Manatee County by Florida Power & Light Company

Dear Ms. Bayó:

By means of this transmittal and a corollary transmittal of confidential documents, Florida Power & Light Company ("FPL") is initiating two determination of need proceedings pursuant to Section 403.519, Florida Statutes. FPL seeks determinations of need for two four-on-one combined cycle units, Martin Unit 8 and Manatee Unit 3. After more than six months of extensive analysis, a comprehensive and successful Request for Proposals and a thorough consideration of economic and non-economic factors, FPL concluded that its construction of Martin Unit 8 and Manatee Unit 3 is the most cost-effective, lowest risk alternative to meet its customers' 2005 and 2006 capacity needs. FPL's determination has been independently verified by a third party evaluator.

Therefore, enclosed for filing on behalf of FPL are the original and fifteen copies of FPL's (i) Petition For Determination of Need For an Electrical Power Plant In Martin County; (ii) Petition For Determination of Need For an Electrical Power Plant In Manatee County; (iii) Need Study for Electrical Power Plant 2005-2006; (iv) Appendices to Need Study, in two volumes labeled A-E and F-O; (v) five volumes of testimony and exhibits; and (vi) a Motion to Consolidate Need Determination Proceedings. Please note that the Need Study Document, the Need Study Appendices and the direct testimony and exhibits are being filed in both proceedings. Because the same analysis

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led to the decision to request determinations of need for Martin Unit 8 and Manatee Unit 3, these documents are equally applicable to both determination of need proceedings. For that and other reasons set forth in FPL's Motion to Consolidate, only sixteen sets of these documents are being filed.

Also being filed is a diskette containing the electronic version of the two determination of need petitions and the Motion to Consolidate Need Determination Proceedings. The enclosed diskette is HD density, the operating system is Windows 2000, and the word processing software in which the document appears is Word 2000.

As previously noted, FPL is separately filing confidential documents and a request for specified confidential classification in these two need determination proceedings. This separate filing is being made to simplify the processing of the filing and protect confidential materials from being disclosed.

If you or your staff have any questions regarding this transmittal, please contact me at 222-2300.

Very truly yours

Charles A. Guydon

Enclosures

cc: Martha Carter Brown (w/enclosures)
Jack Shreve (w/enclosures)

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Petition To Determine Need For an Electrical Power Plant in Manatee County) by Florida Power & Light Company.

Docket No. 020263 -El

Dated: March 22, 2002

PETITION FOR DETERMINATION OF NEED FOR AN ELECTRICAL POWER PLANT

Pursuant to Section 403.519, Florida Statutes, and Rules 25-22.080 and 25-22.081, Florida Administrative Code ("FAC"), Florida Power & Light Company ("FPL" or the "Company") respectfully petitions the Florida Public Service Commission ("PSC" or the "Commission") for an affirmative determination of need for the construction of a new four-turbine combined cycle unit at FPL's existing Manatee plant site, Manatee Unit 3. In support thereof, FPL states:

- 1. Manatee Unit 3 will include four identical GE F-series combustion turbines ("CTs"), which will function in a combined cycle operation with four heat-recovery steam generators ("HRSGS") that will, in turn, power a single steam turbine. The resulting four-on-one combined cycle unit will have a summer peak capacity rating of 1,107 MW and a winter peak capacity rating of 1,197 MW.
- 2. FPL proposes to place the combined cycle unit in commercial service by June 2005. To this end, FPL filed its application for Site Certification with the Florida Department of Environmental Protection ("DEP") on February 22, 2002.
- 3. FPL is submitting in support of this Petition a detailed Need Study document and appendices which develop more fully the information required by

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Rule 25-22.081, FAC, and which is hereby incorporated by reference (the "Need Study Document"). The Need Study Document addresses both Manatee Unit 3 and Martin Unit 8, for which FPL has separately sought a determination of need. As demonstrated below and in the Need Study Document, Manatee Unit 3 and Martin Unit 8 will improve electric system reliability and integrity, provide adequate power at reasonable cost, and serve as the most cost-effective options for providing the generation capacity needed to meet the needs of FPL's customers. Additionally, there is no reasonably available demand side management ("DSM") alternative that would mitigate the need for Manatee Unit 3 and Martin Unit 8.

I. Preliminary Information

4. The Petitioner's name and address are:

Florida Power & Light Company 9250 West Flagler Street Miami, Florida 33102

5. The names and addresses of FPL's representatives to receive communications regarding this docket are:

Charles A. Guyton Steel Hector & Davis LLP 215 South Monroe Street Suite 601 Tallahassee, Florida 32301 R. Wade Litchfield, Esq. Florida Power & Light Company 700 Universe Boulevard Juno Beach, Florida 33408-0420

William G. Walker, III Florida Power & Light Company Vice President 215 South Monroe Street Suite 810 Tallahassee, Florida 32301-1859

II. The Primarily Affected Utility

- 6. FPL is a Florida corporation with headquarters at 700 Universe Boulevard, Juno Beach, Florida, 33408. FPL is a utility as defined in Section 366.82(1), Florida Statutes, and an applicant as defined in Section 403.503(4), for purposes of Section 403.519, Florida Statutes. FPL is the primarily affected utility within the meaning of Rule 25-22.081, FAC.
- 7. FPL serves just over 3.9 million retail customers throughout Florida. Its service area comprises approximately 27,650 square miles in 35 Florida counties. Approximately 7.7 million people presently live within FPL's service area. During 2001, 52 percent of FPL's sales were to residential customers, 42 percent were to commercial customers, 4 percent were to industrial customers, and 2 percent were to highway lighting and other customers.
- 8. FPL is charged with serving both its existing customers and new customers that locate in its service territory. FPL forecasts continued growth of customers in its service territory for the foreseeable future. The population in its service territory is expected to grow to 8.4 million by 2006. FPL projects that its annualized retail customer growth from 2002 to 2006 will be 2.6 percent and that its Net Energy Load ("NEL") will grow at an annualized rate of 3.7 percent for that period.
- 9. In 2001, FPL experienced a coincident peak demand of 18,754 MW (summer) and 18,199 (winter) and a NEL of 98,404 gigawatt-hours ("GWh"). For 2005 and 2006, FPL projects to experience summer peak demand of 20,719 MW (2005) and 21,186 MW (2006), and winter peak demand of 20,418 MW (2005)

and 20,854 MW (2006), before accounting for the effects of DSM. FPL expects NEL to grow from its present level to 111,772 GWh in 2005 and 115,602 GWh in 2006.

- 10. FPL is part of a nationwide interconnected power network. It has eight points of interconnection with other utilities that enable power to be exchanged among utilities. (FPL's interconnection points with other utilities are addressed in more detail in the Need Study Document.) The FPL transmission system includes more than 1,107 circuit-miles of 500 kilovolt ("kV") and 2,644 circuit-miles of 230 kV transmission lines, 2,459 circuit miles of lower voltage transmission lines, and 505 substations.
- 11. FPL presently meets its resource needs by a mix of conventional and nuclear generating units, purchased power and DSM. FPL is projecting a total resource capability of 21,140 MW in the summer of 2002. This capability includes four nuclear steam units (2,939 total summer MW), three coal units (912 summer MW), eight combined-cycle units (4,730 summer MW), seventeen fossil-fired steam units (7,053 summer MW), fifty simple-cycle CTs (2,214 summer MW), five diesel units (12 summer MW), and long-term firm-capacity contracts from two utilities (1,310 MW) and eight qualifying facilities (877 total MW). Additionally, FPL has short-term firm capacity contracts with 6 entities (1,093 MW) for the summer of 2002.
- 12. Based on a detailed reliability assessment which is discussed below and in the Need Study Document, FPL projects that it will need at least

1,722 MW of additional capacity to meet its needs and provide adequate reserve margins in 2005 and 2006.

III. The Proposed Electrical Power Plant

- 13. The proposed plant will be a new four-on-one combined cycle unit at FPL's existing Manatee Plant site. It would utilize four new GE F series CTs. The heat generated by the four CTs would power four new HRSG's that would produce steam to, in turn, power a new steam turbine. The total rated peak capacity of the four CTs and the single steam turbine would be 1,107 MW in summer and 1,197 MW in winter.
- 14. The new combined cycle unit would have a low marginal operating cost and an average net-operating heat rate of 6,850 Btu/kWh (at 75°F). This will make the plant highly economical and, indeed, one of the most efficient in FPL's system.
- 15. Manatee Unit 3 will use natural gas delivered by pipeline to the plant as its sole fuel. Unlike Martin Unit 8, it will not have dual-fuel capability. However, it will have the capability of securing natural gas from multiple sources, which will greatly increase the reliability of its fuel supply. The added reliability of dual natural gas suppliers and multiple pipelines in the Manatee area reduces the importance of having an alternative fuel source for this unit.
- 16. Manatee Unit 3 will connect to the existing on-site system substation via a new tie line. Additional bays will be added to the existing system substation to accommodate the new interconnection to FPL's electric

transmission system. (Transmission interconnection and integration are more fully discussed in the Need Study Document).

- 17. The location of Manatee Unit 3 within an existing power plant site will serve one of the underlying purposes of the Florida Electrical Power Plant Siting Act, Section 403.501, et. seq., and Section 403.519, -- to limit the number of power plants in the state.
- 18. Manatee Unit 3 will be a highly reliable source of energy for FPL's customers. It will have an estimated equivalent availability factor of ninety-seven percent (97%) and a low estimated equivalent forced outage rate of one percent (1%). The existence of this highly-reliable unit will improve the system reliability and integrity of FPL and Peninsular Florida.
- 19. The estimated total installed cost of Manatee Unit 3 is \$566 million (2005 dollars). This estimate includes the cost of the power block, interconnection facilities, integration facilities and allowance for funds used during construction. This represents the most cost effective option for FPL to add the 1,107 MW (summer) and 1,197 MW (winter) of capacity that will be realized.
- 20. FPL needs to have this project in service by June 2005 to meet demand and its 20% reserve margin criterion for the summer of 2005. Without the timely completion of Manatee Unit 3 and Martin Unit 8, FPL and Peninsular Florida's electric system reliability and integrity will be significantly reduced and FPL will fail to meet either a 20% or even a 15% reserve margin in 2005 and 2006.

IV. FPL's Need for Manatee Unit 3

- 21. In 2001, FPL performed reliability assessments that showed a need for an additional 1,722 MW of capacity by the summer of 2006. In performing these analyses, FPL employed two reliability criteria. First, FPL sought to maintain sufficient capacity to keep its loss of load probability to less than 0.1 day per year. Second, beyond the summer of 2004, FPL sought to maintain the 20% reserve margin to which FPL agreed and the Commission approved in Order No. PSC-99-2507-S-EU. (The results of FPL's 2000 and 2001 reliability assessments are fully discussed in the Need Study Document.)
- 22. As shown in the Need Study Document, without the timely addition of both Manatee Unit 3 and Martin Unit 8, FPL will be unable to maintain the required 20% reserve margin in 2005 and 2006. Absent these units, FPL would have summer reserve margins of only 14.1% in 2005 and 11.1% in 2006. Manatee Unit 3 is, therefore, needed to maintain the electric system reliability and integrity of FPL and Peninsular Florida.
- 23. Manatee Unit 3 will add highly efficient and cost-effective generation that, as a utility-owned plant, will be committed to Florida retail customers at cost-based rates. As shown in the accompanying Need Study Document, Manatee Unit 3 will produce adequate electricity at a reasonable cost, improve system efficiency, increase reliability and reduce fuel costs.

V. FPL's Analysis of Generating Alternatives

24. As discussed in more detail in the Need Study Document, FPL examined and evaluated thirteen self-build generating alternatives which are summarized in the following table:

Candidate Self-Build Capacity Additions*

Location	Technology	Primary Fuel	Level of Duct Firing	Incremental Net Summer Peak Capability
Fort Myers	(1) - 2x1 CC	Natural gas	Moderate	237 MW
Port Everglades	(2) – 4x1 CC repowering	Natural Gas	Light	1238 MW
Manatee	(1) – 3x1 CC	Natural Gas	Moderate	833 MW
	(1) – 4x1 CC	Natural Gas	Moderate	1107 MW
Martin	(2) – 300 MW pulverized coal boiler	Petroleum coke	N/A	600 MW
	(1) – 3x1 CC	Natural Gas	Light	763 MW
	(1) – 3x1 CC	Natural Gas	Moderate	833 MW
	(1) – 3x1 CC expansion of Units 8A&B	Natural Gas	Moderate	515 MW
	(1) – 3x1 CC	Natural Gas	Heavy	881 MW
	(1) – 4x1 CC	Natural Gas	Moderate	1110 MW
	(1) – 4x1 CC expansion of Units 8A&B	Natural Gas	Moderate	789 MW
Sanford	(1) – 1x0 simple cycle w/ HRSG to provide power augmentation for new CT and existing Unit 4 CTs	Natural Gas	None	214 MW
	(1) – 1x0 simple cycle w/ HRSG to provide power augmentation for new CT and existing Unit 5 CTs	Natural Gas	None	214 MW

^{*}The capacity value shown for each option is the MW value used in FPL's final analysis of that option.

- 25. Ultimately, FPL rejected eleven of these FPL generating alternatives, and selected Manatee Unit 3 and Martin Unit 8 as the best self-build options. Ten of the eleven alternatives were rejected based on relative economics. The other self-build alternative, the 600 MW Martin Petroleum Coke project, was rejected because its cost and performance assumptions were not sufficiently well developed, and there were concerns over licensing and construction schedules. FPL's economic analyses showed that the combination of Manatee Unit 3 and Martin Unit 8 was the most cost-effective FPL self-build generation portfolio to meet FPL's 2005 and 2006 need for capacity.
- 26. FPL also engaged in an extensive capacity solicitation process, which is described below and discussed in further detail in the Need Study Document. On August 13, 2001, FPL announced in the Wall Street Journal and through news releases to numerous newspapers and periodicals that it was issuing a Request for Proposals ("RFP") for 1,150 MW of capacity to meet its 2005 needs, and an additional 600 MW of capacity for its 2006 needs. ¹
- 27. On August 24, 2001, consistent with the RFP notice, FPL held a pre-bid workshop in Miami. Thirty-one organizations attended the workshop during which FPL explained the RFP process and solicited comments.
- 28. On September 28, 2001, FPL received a number of capacity proposals from 15 organizations. The bidders included twelve non-utility entities, two Florida utilities and one non-Florida utility. Collectively, the proposals offered more than 14,500 MW of capacity for the 2005/2006 time frame and ranged from supply proposals as short as three years to turnkey projects. FPL's initial review

¹ FPL revised its estimate of need later that year to 1,122 MW for 2005.

of the proposals suggested there were 29 different proposals. However, more detailed reviews of the proposals and bidders' answers to follow-up questions established that there were, in fact, 81 proposals, only one of which was ultimately determined to be nonresponsive to the RFP.

- 29. As discussed in the Need Study Document, FPL undertook extensive analysis of the proposals and its self-build options using Stone and Webster's Electric Generation Expansion Analysis System Model ("EGEAS"), FPL's long standing primary modeling tool. (The EGEAS model is described in detail in the Need Study Document.) Additionally, an independent, third-party evaluator, Sedway Consulting, Inc., was retained to perform its own evaluation of the proposals. The independent evaluator used its own spreadsheet model called the Response Surface Model ("RSM"), which employs the same cost inputs and system fuel profile as EGEAS. (The use of the RSM is explained in the Need Study Document and the Independent Evaluation Report, which is being filed along with this petition as Document No. AST-2 to the Direct Testimony of Alan S. Taylor.)
- 30. Both FPL and the independent evaluator began by performing individual rankings of the proposals. Based on these rankings, portfolios of the most economical outside proposals were developed. A similar process was also used to evaluate FPL self-build portfolios.
- 31. "Combination" portfolios were then developed, which combined the best FPL options and outside proposals into various generation portfolios. At

that point, EGEAS and the RSM were used to compare the most economical portfolios.

- 32. FPL finalized most of its EGEAS optimization runs in early January 2002. At that time, FPL and the independent evaluator supplemented their economic analyses by incorporating additional costs not captured in the EGEAS and RSM runs, such as generator startup costs, transmission integration costs and equity penalty costs.
- 33. FPL's final cost comparisons were completed in February and showed that the FPL portfolio of Manatee Unit 3 and Martin Unit 8 was the most cost-effective alternative to meet FPL's 2005 and 2006 capacity needs. As shown and discussed in more detail in the Need Study Document, the Manatee Unit 3 and Martin Unit 8 portfolio was \$12 million more cost-effective in cumulative present value of revenue requirements ("CPVRR") than the next best alternative portfolio. That alternative portfolio relied in large part on a highly speculative proposal by a financially distressed entity. Additionally, there were non-price attributes to the Martin Unit 8 and Manatee Unit 3 portfolio that made it an even clearer choice.
- 34. The independent evaluator's analysis showed a larger cost differential. Under its analysis, the Manatee Unit 3 and Martin Unit 8 portfolio was more cost-effective than the next lowest cost portfolio by \$36 million (CPVRR).
- 35. The economic analyses performed by both FPL and the independent evaluator show that the combination of Manatee Unit 3 and Martin

Unit 8 is the most cost-effective alternative to meet FPL's 2005 and 2006 capacity needs.

- 36. In addition to the economic analysis performed, FPL assessed non-price attributes of the various competitive portfolios. FPL's Manatee Unit 3 and Martin Unit 8 portfolio had significant non-price advantages over all of the next least cost portfolios.
- 37. The six next lowest cost portfolios were all combination portfolios including either Manatee Unit 3 and outside proposals or Martin Unit 8 and outside proposals.
- 38. However, each of those combination portfolios relied upon a specific proposal for a 25 year purchase from a 465 MW combustion turbine project which FPL assessed as highly risky and of low benefit to FPL customers for a number of reasons. The project was offered by a developer that was financially distressed. The developer stated it had a firm gas supply for the project, but that the project would not have firm gas transportation costs or backup fuel capability. Moreover, the gas was to be supplied by an undersea gas pipeline that had yet to be constructed or permitted and which would be owned by an affiliate of the same financially distressed developer. Finally, the pricing of the proposal, with low capacity charges and very high energy prices coupled with FPL only being given first call for energy at the very high dispatch price effectively assured that, unlike other proposals and its own construction alternatives, FPL would seldom dispatch the unit and would not have the unit available to make off-system sales to the benefit of FPL customers.

39. Based upon the economic analyses showing the Manatee Unit 3 and Martin Unit 8 portfolio as being the most cost-effective alternatives to meet FPL's needs as well as FPL's assessment of the non-price advantages of the Manatee Unit 3 and Martin Unit 8 portfolio, FPL decided to proceed with the licensing of Manatee Unit 3 and Martin Unit 8.

VI. FPL's Analysis of Non-Generating Alternatives

- 40. potentially viable Apart from considering all supply-side alternatives. FPL considered DSM FPL also alternatives. employs comprehensive and cost-effective DSM programs to reduce load requirements and encourage conservation. FPL has long been one of the key innovators in the field of DSM, and is a nationally ranked industry leader in conservation and load management.² Without its DSM, FPL would require far more additional capacity to meet its present and projected needs.
- 41. FPL recently revised and submitted its DSM Plan for PSC approval. FPL's request was approved by the Commission in Order No. PSC-99-1942-FOF-EG. (A copy of FPL's approved DSM Plan is found in documents attached to the pre-filed Direct Testimony of Mr. Dennis Brandt being filed along with this petition.) In its DSM Plan, FPL evaluated and proposed various DSM strategies which comply with the Florida Energy Efficiency and Conservation Act and Commission-approved tests of cost-effectiveness. This evaluation led to a DSM Plan consisting of six residential, eight commercial/industrial DSM programs, one

² In 2000, FPL was rated first in energy conservation achievement and second in load management among the nation's electric utilities by the U.S. Department of Energy.

research and development program, and five research and development projects.

- 42. Since the inception of FPL's DSM program in the late 70's, FPL has achieved (at the meter) 3,076 MW of summer peak demand reduction and 2,680 MW of winter peak demand reduction. After accounting for reserve margin requirements, that is the equivalent of nine 400-MW nominal capacity power plants that otherwise would have been built. Since the inception of its DSM initiatives, FPL has saved an annual total of 19,713 GWh of energy at the generator and completed more than 1,730,000 energy audits of customer homes and facilities.
- 43. All of FPL's DSM programs are being actively implemented by FPL and all were factored into FPL's reliability analyses. As shown in the accompanying Need Study Document, FPL's projected need for 1,722 additional megawatts of capacity in 2005/2006 already takes into account the cost-effective DSM options presently available. Therefore, there is no reasonably available DSM option that could eliminate or mitigate the need to add the generation capacity provided by Manatee Unit 3.

VII. Adverse Consequences of Delay

44. As noted above and detailed in the Need Study Document, FPL needs both Manatee Unit 3 and Martin Unit 8 to maintain FPL system reliability through 2005 and 2006. Because of this, it is critical that the in-service date for each project be met. Without Manatee Unit 3 and Martin Unit 8, FPL's summer

reserve margins will fall to 14.1% in 2005 and 11.1% in 2006, well short of the 20% reserve margin goal approved by the Commission.

45. Any delay in licensing Manatee Unit 3 and Martin Unit 8 will significantly adversely affect FPL's and Peninsular Florida's electric system reliability and integrity in 2005 and 2006. Any delay in these projects will deprive FPL's customers of the benefits of the reliable, cost-effective and environmentally friendly power that would be provided upon timely completion.

VIII. Disputed Issues of Material Fact

46. FPL is presently unaware of any disputed issues of material fact affecting this proceeding. However, FPL is aware of a separate complaint in which one of the RFP bidders has challenged FPL's RFP, and if that bidder participates in this proceeding, there will likely be disputed issues of material fact raised regarding FPL's compliance with Rule 25-22.082, Florida Administrative Code. FPL intends to prove at the final hearing that Manatee Unit 3 and Martin Unit 8 will improve electric system reliability and integrity, provide adequate power at reasonable cost, and are the most cost-effective options for providing the generation capacity needed to meet the needs of FPL's customers. FPL will also prove there is no reasonably available conservation or other non-generation alternative that would mitigate the need for Manatee Unit 3 and Martin Unit 8.

CONCLUSION

The proposed Manatee Unit 3 is a highly cost-effective and environmentally benign option for meeting FPL's capacity needs. It presents

several key advantages to FPL and its customers. Most importantly, it is critically needed to meet reliability needs in 2005 and 2006. Beyond that, it increases electric system reliability and integrity throughout Peninsular Florida, it provides adequate power at reasonable cost, and along with Martin Unit 8 it is the most cost-effective alternative to meet needed capacity to FPL's system.

Based upon the foregoing and the more detailed information in the Need Study Document and pre-filed testimony submitted contemporaneously with this Petition, FPL requests that the Commission grant a favorable determination of need for Manatee Unit 3 within the time limitations set forth in Rule 25-22.080, FAC.

R. Wade Litchfield, Esq. Florida Power & Light Company 700 Universe Boulevard Juno Beach, Florida 33408-0420 Telephone: 561-691-7101 Respectfully submitted,

Steel Hector & Davis LLP 215 South Monroe Street Suite 601 Tallahassee, Florida 32301 Telephone: 850-222-2300

By: <u>Marlis El Suyton</u> Charles A. Guyton

CERTIFICATE OF SERVICE

I hereby certify that a copy of the foregoing Petition for Determination of Need for an Electrical Power Plant was served by hand delivery to the following this 22nd day of March, 2002.

Martha Carter Brown Staff Attorney Florida Public Service Commission 2540 Shumard Oak Boulevard Tallahassee, Florida 32399-0850

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