

FLORIDA PUBLIC SERVICE COMMISSION

Fletcher Building  
101 East Gaines Street  
Tallahassee, Florida 32399-0850

M E M O R A N D U M

AUGUST 15, 1991

TO : DIRECTOR, DIVISION OF RECORDS AND REPORTING

FROM: DIVISION OF ELECTRIC AND GAS [BRADY, BALLINGER] <sup>TB 27</sup>  
DIVISION OF LEGAL SERVICES [ELIAS] <sup>RUE</sup> JOJ

RE : DOCKET NO. 910578-EI - FLORIDA POWER CORPORATION,  
PETITION FOR DETERMINATION OF NEED FOR DEBARY-WINTER  
SPRINGS 230 KV TRANSMISSION LINE

AGENDA: 8/27/91 - CONTROVERSIAL AGENDA - PARTIES MAY NOT  
PARTICIPATE

CRITICAL DATES: NONE

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CASE BACKGROUND

Pursuant to the provisions of Section 403.537, Florida, Statutes (Supp. 1990), and Rules 25-22.075 and 25-22.076, Florida Administrative Code, Florida Power Corporation (FPC) filed a petition on June 3, 1991, to determine need for a proposed Debary-Winter Springs 230 kv Transmission Line (the proposed "Project").

The Commission held a public hearing on July 8, 1991. Notices of the hearing and the filing of the petition were given in accordance with applicable statutes and rules, and were provided to persons requesting notice, to counties and regional planning councils in whose jurisdiction the transmission line could be placed, by publication in the Florida Administrative Weekly, and in newspapers of general circulation no later than forty-five (45) days prior to the date of the hearing. There were no intervenors.

Florida Power Corporation (FPC) presented the testimony of Michael B. Foley and John E. Odom in support of the petition for the Project. Mr. Foley directs generation and transmission facility planning for FPC and described the reliability and strategic benefits the Project will provide to FPC and its customers. Mr. Foley also sponsored the comparison of alternatives to the proposed Project with estimated cost for each alternative. Mr. Odom is FPC's area planner responsible for evaluating the transmission system within FPC's Mid-Florida Division, including interconnections with other divisions and utilities. Mr. Odom described FPC's reliability criteria and planning process.

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### DISCUSSION OF ISSUES

**ISSUE 1:** Is the proposed project needed for electric system reliability and integrity?

**RECOMMENDATION:** Yes.

**FPC'S POSITION:** Yes. The Project is needed by December, 1995 to maintain single contingency reliability on FPC's transmission system. Unless the line is in-service by December, 1997, single contingency criteria will be violated for an additional contingency. The Project will also address a double contingency in this time frame.

**STAFF ANALYSIS:** As provided in Section 403.537, Florida Statutes, "the Commission shall take into account the need for electric system reliability and integrity, the need for abundant, low-cost electrical energy to assure the economic well-being of the citizens of this state, the appropriate starting and ending point of the line, and other matters within its jurisdiction deemed relevant to the determination of need." Basically, this Statute states that the Commission shall determine that a proposed project is the most cost-effective means of maintaining reliability.

Members of the Florida Electric Power Coordinating Group (FCG), guided by the regional criteria set forth by the Southeastern Electric Reliability Council (SERC), have determined that bulk power system in the State of Florida shall be planned to meet the more probable contingency situations without loss of load. More probable contingencies are events likely to occur such as sudden loss of any single generating unit, or any single transmission line, or any single transformer bank. [EXH 2, Appendix G]. This is sometimes referred to as single contingency planning.

FPC has identified two situations where the single contingency planning criteria would be violated. First, by December of 1995, a loss of the Sanford-North Longwood 230 kV line will cause the Sanford-Sylvan-North Longwood line to overload and exceed its emergency rating. FPC estimates that service to approximately 95,000 customers could be affected by this single contingency. With the proposed Project, FPC has an alternate 230 kV line to temporarily redistribute load carried by the lost Sanford-North Longwood line. [TR 60]

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Secondly, by December 1997, a loss of the North Longwood-Winter Springs line would cause the Stanton-Rio Pinar line to reach its emergency rating. In addition FPC and OUC both own parts of the Stanton-Rio Pinar line. Regardless, FPC believes OUC has no responsibility in this matter since the customers that would be affected by this violation are FPC's. The number of affected customers would be approximately 16,000. Also by December 1997, FPC has also sufficiently demonstrated that loss of the Rio Pinar-Stanton line will cause the North Longwood-Winter Springs line to exceed its normal rating affecting service to approximately 8,000 customers. [TR 61, 92-93; EXH 10, p. 3, 4]

In addition to these single contingency violations, an outage of the Sanford-Altamonte and Sanford-North Longwood lines, which share common structures for approximately 12 miles, will cause a severe overloading of the Sanford-Sylvan-North Longwood line. This is a "double" contingency since two lines would be lost at the same time. FCG's and SERC's reliability planning criteria consider loss of any two transmission lines on the same double-circuit tower to be a "less probable contingency"--not as likely to occur. Less probable contingencies may cause loss of some load and/or instability of some localized generation, but systems should be designed to avoid cascading failures (one line loss after another) throughout the bulk power system. FPC testimony indicated that this double contingency could totally separate the generation at DeBary and at FPL's Sanford Plant from the Greater Orlando Area and has the potential to impact service to approximately 500,000 customers as the result of a single event. The proposed Project is not expected to totally alleviate the overloading, but to reduce it down to the level where dispatchers can intervene and prevent a cascading failure. [TR 60, 74; EXH 2, Appendix G].

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**ISSUE 2:** Is the proposed project needed for abundant, low-cost electrical energy to assure the economic well-being of the citizens of this state?

**RECOMMENDATION:** Yes. The proposed Project is the most cost-effective means of satisfying FPC's single and double contingency requirements.

**FPC'S POSITION:** Yes. The Project is needed to overcome transmission limitations at the DeBary generating site so that FPC can reliably disperse power from that site if additional CTs need to be added on short notice. The Project is also needed to minimize the impact on service to customers in a number of single and double contingency situations.

**STAFF ANALYSIS:** This Issue is meant to address the cost-effectiveness of the proposed Project. Exhibit 5 contains a summary of the alternatives studied. Of these alternatives, only one single line alternative, a DeBary - Winter Park East line, had the same benefits. This alternative is basically a longer and more expensive version of the proposed project. Other combinations of lines had higher costs due to required upgrades at various substations.

In addition, the proposed Project provides additional flexibility to FPC's generation expansion plans. Should FPC's load forecasts be wrong, their 500 kV transmission line to Georgia be delayed, or any of the recently signed cogeneration projects default or lag to any significant degree, FPC will have to fall back on its own ability to construct capacity quickly to make up the shortfalls. The DeBary acreage provides such a site for FPC. The proposed Project will also create additional transmission capability to serve such generation. Even if capacity is not added at the DeBary site, the proposed Project will facilitate power flow from generation north of DeBary to load centers south of DeBary.  
[TR 63-64]

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According to FPC's testimony the proposed Project is designed to provide the ability to reliably transfer more power from the electrical sources at DeBary and FPL's Sanford Plant into the Greater Orlando Area. The result is a more strongly interconnected utility system in this area and greater ability to dispatch power from generation in the north to the load it serves in the south. FPL has already agreed to let FPC loop two of its lines, which are located in the same corridor proposed for the Project, directly into their Sanford plant for greater temporary reliability. This work is already in progress. The proposed Project adds another line along which energy to supply load in the south can be dispatched from both sources of power generation power in the north. Staff concurs that the result will be greater area reliability. [TR 18, 74-75; EXH 2, p. 19]

FPC's proposed Project is also designed to make the Winter Springs Substation a strong source that will support a 230 kV extension to the south and east to provide a new source for the underlying 69 kV network in the future. FPC's witness testified that another 230 kV line into the North Longwood substation would jeopardize reliability by overloading that station. The Winter Springs substation, however, is not currently overloaded. It's also more centrally located between FPL's Sanford plant and OUC's Stanton. As such it is an ideal location to begin to tie 230, 115, and 69 kV lines into the grid as load expands in the easterly direction. Staff concurs that the result will be greater area reliability. [TR 64, 75; EXH 2, p. 19]

Based on the above, Staff would recommend that the proposed project is needed to provide abundant, low-cost electrical power.

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**ISSUE 3:** Have the major transmission alternatives been adequately addressed?

**RECOMMENDATION:** Yes.

**FPC'S POSITION:** Yes. FPC examined a number of alternatives that would address the need to maintain transmission reliability by protecting against various contingency situations, and that would overcome the DeBary site's transmission limitations. The only single-line alternative that would solve all of these problems is a longer, more expensive version of the same line. While there are several two-line projects that would address these needs, each of these combinations is more costly than the Project and is less desirable from a technical viewpoint.

**STAFF ANALYSIS:** FPC evaluated 8 alternatives to the proposed project including one alternative suggested by staff. Four alternatives would correct the 1995 single contingency violations; help control a double contingency violation--should it occur; and support additional generation at the DeBary site. However, three of the four alternatives would not correct the 1997 single contingency violations. The fourth alternative, which would correct the 1997 single contingency violation, was longer and more expensive than the proposed Project. FPC also evaluated four other alternatives, including the one offered by staff, which would correct the 1997 single contingency violations. None of these alternatives addressed the other needs of the Project. [EXH 5]

While FPC pointed out that combinations of the alternatives could provide the same benefits as the proposed Project, all would be longer, hence more expensive, than the proposed Project and not technically as sound. Staff concurs with FPC's conclusions concerning the alternative lines.

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**ISSUE 4:** Have the specific situations which indicate a need for the project been adequately addressed?

**RECOMMENDATION:** Yes. Single and double contingency violations were sufficiently proven by FPC's petition. Additional strategic benefits for the proposed Project were also given, but do not specifically impact the need.

**FPC'S POSITION:** Yes. The Project is needed to maintain and improve the reliability of service to FPC's customers in the Greater Orlando Area and to overcome transmission limitations at the DeBary generating site. Specifically, the Project will maintain single contingency reliability; will improve transmission reliability in the Greater Orlando Area by minimizing the customer impact of an outage of a double-circuit transmission line; will improve the power transfer capability on FPC's system by providing an additional transmission path from the electrical sources in the North at DeBary and FPL's Sanford Plant to load in the Greater Orlando Area in the south; will support future extension of the 230 kV and 69 kV transmission grid as the load continues to grow in the eastern portion of FPC's service territory; and will overcome transmission limitations at the DeBary generating site.

**STAFF ANALYSIS:** Staff's analysis of FPC's 1995 and 1997 single contingency violations and their 1995 double contingency violation is given in Issue 1. Analysis of the strategic benefits from the proposed project is contained in Issue 2.

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**ISSUE 5:** Will there be adverse consequences to the electrical system if approval of the project is delayed or denied?

**RECOMMENDATION:** Yes.

**FPC'S POSITION:** Yes. FPC's customers will face a risk of more frequent and more severe outages if approval of the Project is delayed or denied.

**STAFF ANALYSIS:** In analysis to Issue 1, staff concluded that FPC had sufficiently demonstrated that without the proposed Project in place by 1995, there could be:

1. 1995 single contingency violations which would cause FPC to have to rotate blackouts to approximately 95,000 customers at a time.
2. 1995 double contingency violations which would separate generation in the north from load in the south resulting in cascading failures and widespread outages affecting approximately 500,000 customers in the Greater Orlando Area.

FPC anticipates the entire process to select the corridor; to receive final certification action by the Siting Board; and then to engineer and construct the transmission line will take till December 1995. This is the same time these potential violations could occur. It appears, therefore, that any substantial delay in siting the proposed Project could adversely affect FPC's electrical system and disrupt service to FPC's customers. [EXH 2, Appendix B]

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**ISSUE 6:** Are the DeBary Plant in Volusia County and the Winter Springs Substation in Seminole County the appropriate starting and ending points for the Project?

**RECOMMENDATION:** Yes.

**FPC'S POSITION:** Yes.

**STAFF ANALYSIS:** Staff concluded in its analysis of Issue 3 that the proposed Project was the most cost-effective alternative that addressed all the reliability needs of FPC. By proving the proposed Project is the most appropriate alternative for its transmission needs, FPC has proven the DeBary Plant in Volusia County and the Winter Springs Substation in Seminole County are the appropriate starting and ending points for the Project.

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**ISSUE 7:** Has FPC satisfied the informational requirements of Rule 25-22.0876, F.A.C.?

**RECOMMENDATION:** Yes.

**FPC'S POSITION:** Yes. This issue was stipulated by the parties.

**STAFF ANALYSIS:** This is a stipulated issue and only requires the Commission's approval.

**ISSUE 8:** Should this docket be closed?

**RECOMMENDATION:** Yes.

**STAFF ANALYSIS:** If no party files a motion for reconsideration or notice of appeal, the Commission will have completed its consideration of this petition. Accordingly, the docket should be closed at that time.

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