BEFORE THE FLORIDA
PUBLIC SERVICE COMMISSION

DOCKET NO. 050145-EI
FLORIDA POWER & LIGHT COMPANY

IN RE: PETITION FOR DETERMINATION OF NEED FOR THE ST. JOHN'S-PELLICER-PRINGLE PROJECT

DIRECT TESTIMONY OF:

VICENTE ORDAX, JR.

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MARCH 25, 2005

Q. Please state your name and business address.

A. My name is Vicente Ordax, Jr. My business address is 4200 West Flagler Street, Miami, FL 33134.

Q. By whom are you employed and what is your position?

A. I am employed by Florida Power & Light Company (FPL) as Supervisor of Local Area Planning.

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

A. My responsibilities include the direct supervision of engineers in the development and evaluation of transmission expansion plans utilizing load flow analysis. I have held this position and performed these responsibilities since September of 2001.

Q. Please describe your professional work experience and educational background prior to your present position.

A. Prior to my present position, I worked as a transmission planning engineer at FPL from 1993 through August 2001 in the area of Bulk Transmission Planning. During this time my primary duties and responsibilities included participation in

and performance of bulk transmission studies, joint transmission studies with neighboring utilities, the evaluation of the transmission requirements of alternative future power plant proposals and stability analysis related to the interconnection of Independent Power Producers. In addition, I was responsible for performing part of the transmission assessments assigned to the Transmission Working Group of the Florida Reliability Coordinating Council (FRCC).

From 1986 through 1993 I worked in FPL's Protection and Control group as a field engineer primarily responsible for calibrating and maintaining protection relays. I also worked in FPL's Operations Engineering group. My primary responsibilities in the Operations Engineering group included issuing transformer tap settings, optimizing generator step-up and auxiliary transformer tap settings as well as performing many day to day transmission studies related to transmission clearances and detailed local area transmission assessment studies that would aid the transmission system operator.

I graduated with honors from the University of Florida with a Bachelor of Science degree in Electrical Engineering in August of 1986. I received a Master of Science degree in Electrical Engineering from Florida International University in August of 1990. I am a registered professional engineer in the state of Florida since 1991. I have also attended seminars and short courses covering topics related to transmission planning.

Q. **Are you a member of any professional organizations?**

A. Yes, I am a member of the Institute of Electrical and Electronics Engineers and of the Power Engineering Society.

Q. Are you sponsoring any portion of the Petition?

A. Yes. I am sponsoring Exhibit "A" to FPL's Petition for Determination of Need for the St. Johns-Pellicer-Pringle Project (SJPP Project or Project) filed with this Commission concurrently with my testimony on March 25, 2005.

Q. Was this exhibit prepared by you or under your direction and supervision?

A. Yes.

Q. Please describe the purpose and scope of your testimony.

A. The purpose of my testimony is to sponsor and support FPL's Petition for a Determination of the Need for the Project. My testimony, as well as Exhibit "A" to the Petition, present the following information in support of the Project:

1. A general description of the existing load and electric characteristics of FPL's electrical transmission grid;
2. A general description of the Project including the design and operating voltage of the proposed transmission line, the starting and ending points of the line, the approximate cost of the Project and the projected in service date;
3. The specific conditions, contingencies and factors which demonstrate the need for the Project including a discussion of FPL's transmission planning process and the reliability benefits of the Project;

4. The major alternatives to the Project that were evaluated and rejected by FPL in favor of the Project; and

5. The adverse consequences to FPL's electric system and customers if the Project is delayed or denied.

Q. Describe the organization of your testimony.

A. First, I will provide an overview of FPL and the existing load characteristics and composition of FPL's transmission network. Second, I will describe the Project, the need for and benefits associated with the Project, and the estimated capital cost of the Project. Third, I will explain FPL's transmission planning process. Fourth, I will discuss the evaluation and analyses conducted to demonstrate the need for and benefits of the Project. Fifth, I will discuss the alternatives considered and explain why they were rejected in favor of the Project. Finally, I will address the adverse consequences to FPL's customers if the Project is denied or not timely approved.

OVERVIEW OF FPL

Q. Please provide a brief description of FPL.

A. FPL provides electric service to more than 4 million customers in 35 Florida counties. In approximate terms, FPL's service territory includes most of the east coast of Florida beginning in Miami-Dade County in southeast Florida and running north to Nassau County in northeast Florida, as well as a large portion of

southwest Florida beginning in Collier County and running north through Manatee County.

Q. Please provide a general description of the existing load and electric characteristics of FPL's electrical transmission grid.

A. FPL's existing load characteristics consist primarily of residential load with limited commercial and industrial load. A listing of historic and forecasted FPL peak demand and energy is provided in Attachment 2 of Exhibit "A". FPL's summer peak demand in 2004 was 20,545MW and the winter peak demand in 2004/05 was 18,108MW serving 4,272,459 customers (January 2005). An overview of FPL's existing electrical transmission network indicating the general location of generating plants, substations, and transmission lines is shown in Attachment 1 of Exhibit "A".

DESCRIPTION OF THE PROJECT

Q. Describe the proposed SJPP Project.

A. As shown in Attachment 4 of Exhibit "A", the SJPP Project consists of a new 230kV transmission line that will provide electric service to three planned substations located south of the existing St. Johns Substation, north of the planned Pringle Substation and to the west of the existing Bunnell-St. Johns 115kV transmission line. This is the Project Service Area. The Project also will provide a 230kV injection at the Pellicer Substation into the existing Bunnell-St. Johns 115kV transmission line. The proposed in-service date for the SJPP Project is December 2008.

Q. Please describe the transmission line for which FPL is seeking a determination of need in this docket.

A. The proposed transmission line will connect FPL's St. Johns and proposed Pellicer and Pringle Substations. The line will be constructed with a single pole design and will have a design and operating voltage of 230kV. The map included as Attachment 4 of Exhibit "A" shows the electrical facilities in the Project Service Area that currently exist as well as other planned facilities in the general area (in black) and a conceptual electrical connection for the SJPP Project (in red). The locations on the map of facilities not yet in service are approximate. In particular, the line depicting the SJPP Project is intended to indicate conceptually an electrical connection from the St. Johns Substation to the proposed Pringle Substation strictly from an engineering and planning perspective. The final length and routing of the line will be determined in further proceedings under the Transmission Line Siting Act (TLSA).

Q. What is FPL's timetable for licensing, design and construction of the Project?

A. FPL presently is evaluating corridors in anticipation of submitting an application under the TLSA in the summer of 2005. A final decision by the Siting Board is expected in the summer of 2006. Detailed design of the SJPP Project will begin as soon as a final corridor is approved. Construction is expected to begin in the fourth quarter of 2007 and expected to be completed by December 2008.

Q. What is FPL's estimated capital cost of the Project?

A. The final route has not been selected and final costs will be subject to a number of factors including the determination of the final length and route of the line as determined under the TLSA. Specifically, the length and route of the line, and other conditions that could be imposed through the TLSA process, will affect land acquisition costs, line construction costs, environmental permitting and mitigation costs, ROW preparation costs, and other compliance costs. Subject to these types of cost variances that could arise through the TLSA process, the estimated capital cost of the SJPP Project is $21.8 million. The corresponding present value revenue requirement (PVRR) is $24.0 million.

FPL'S PLANNING PROCESS

Q. How does FPL determine the need for new transmission lines?

A. Planning for the FPL transmission system follows practices and criteria that are consistent with the NERC, FRCC and other applicable standards. The NERC Planning Standards, which have been adopted by the FRCC, specify transmission system operating scenarios that should be evaluated, and the attendant levels of system performance that should be attained. The NERC Planning Standards are provided in Attachment 5a of Exhibit "A".

FPL's transmission planning process is explained in Attachment 5b of Exhibit "A". FPL conducts an annual transmission assessment of the effects of forecasted future load growth on the transmission system, the need to serve new load areas

or large new customers, future interconnections with neighboring utilities, integration of new generation facilities and firm contractual transmission service obligations. The effect of changes in system performance due to these factors is simulated and analyzed in the present and future years to identify existing and future system limitations. Alternative solutions to these limitations are then developed, analyzed, and screened on the basis of their electrical performance. Viable alternatives are compared for their relative merits with respect to economics, reliability, feasibility, compatibility with long range area requirements, and operating flexibility. Transmission facility additions such as a new transmission line are implemented as a result of this process when they provide the most cost effective and efficient solution.

Q. What studies did FPL perform to determine the need for the SJPP Project?

A. In developing the need for the SJPP Project, FPL conducted regional transmission assessment studies which show transmission limitations on the existing 115kV transmission network south of the St. Johns Substation and north of the Bunnell Substation due to projected load growth in the 2008/2009 time frame.

NEED FOR THE PROJECT

Q. Explain the need for the SJPP Project.

A. The need for the Project is based on the following considerations:

1. The need to serve the increasing load and customer base in the Project Service Area in a reliable manner consistent with NERC, FRCC, and other applicable standards.

2. The need to provide additional transmission reinforcement to the existing 115kV transmission line between Bunnell and St. Johns Substations.

3. The opportunity, subject to final corridor certification under the TLSA, to efficiently and effectively integrate and serve new distribution substations that are needed to serve the projected load growth in the Project Service Area.

Q. Please explain the benefits of this Project.

A. The Project will provide FPL with the optimal choice of facilities necessary to maintain reliability in the existing and projected areas of customer load in the Project Service Area. Specifically, the Project will allow FPL to :

1. Serve new customer load along the I-95/US-1 corridor and west of the existing 115kV transmission network from the southern portion of St. Johns County to the northern portion of Flagler County.

2. Maintain area reliability by providing a parallel path to the existing Bunnell – St. Johns 115kV transmission network.

3. Reduce loading on the existing Bunnell – St. Johns 115kV transmission network through the new injection at the planned Pellicer Substation.

4. Reduce transmission losses by approximately 1.6MW.

5. Provide a reduction of loading on the Bunnell and St. Johns autotransformers.

6. Meet the Project Service Area's long term growth requirements for at least the next 10 years, based on the regional load forecast.

Q. Please describe the contingencies that require the addition of the SJPP Project.

A. As outlined in Exhibit "A" of the Petition, FPL analyzed load flows for the 2008/2009 winter peak load without any new transmission facilities in service. As referenced in Attachment 9 of Exhibit "A," these analyses indicate that for eight different single contingency events, a variety of overloads ranging from 102% to 130% of thermal MVA facility rating and low voltages ranging from below 0.95 per unit to as low as 0.73 per unit can be experienced within and near the Project Service Area. The NERC Planning Standards require that the facility ratings not exceed 100% of the applicable thermal MVA facility rating. The overloads would require the interruption of service of 1,000 to 8,300 customers (approximately 1,700 to 13,800 people), depending on the specific outage, in order to continue to operate the facilities in accordance with NERC Planning Standards.

Q. How would construction of the SJPP Project provide for further load growth as well as resolve these contingencies?

A. The SJPP Project will provide service to 3 new substations and will also provide a 230kV injection from Pellicer into the existing Bunnell-St. Johns 115kV transmission line. The construction of the SJPP Project, based on a projected in-service date of December 2008, would mitigate the thermal overloads and low voltage conditions caused by single contingency events in accordance with NERC Planning Standards and would provide reliable service to existing and new customers as the load in the Project Service Area continues to grow.

DISCUSSION OF ALTERNATIVES

Q. Did FPL consider alternatives to the SJPP Project?

A. Yes.

Q. What factors were employed to evaluate the alternatives?

A. The factors used to evaluate the performance of the alternatives included reliability, cost, construction feasibility, operational flexibility, and compatibility with future transmission system expansion.

Q. Please describe the transmission alternatives that were considered and explain the reasons why they were rejected.

Two transmission alternatives were considered. Alternative I consists of:

1. **Building a new 115kV transmission line from Bunnell 115kV Substation** to St. Johns 115kV Substation to provide transmission service to proposed Pellicer, Anastasia and Vermont Substations;
2. Installing a new 300 MVA 230/115kV autotransformer at the St. Johns Substation and another 300 MVA 230/115kV autotransformer at the existing Millcreek Substation;
3. Upgrading or rebuilding four transmission line sections of the existing Bunnell-St. Johns 115kV transmission line;
4. Adding 110 MVARs of capacitor banks throughout the Project Service Area.

The estimated capital cost of this alternative is $26.0M ($29.5M PVRR).

Alternative I was rejected for the following four reasons:

1. This alternative requires much of the existing 115kV transmission network to be rebuilt between the Bunnell and St. Johns Substations at a higher cost than the SJPP Project.
2. This alternative also requires the expansion of the St. Johns Substation to upgrade the transformation capacity, thereby increasing the cost of this alternative.
3. This alternative provides limited support to and expansion capability of the existing Bunnell-St. Johns 115kV transmission line.
4. This alternative exposes FPL customers to potential reliability concerns due to extended (multiple day) clearances during construction.

Alternative II consists of:

1. **Rebuilding or up**grading six transmission line sections of the existing 115kV transmission network between the St. Johns and Bunnell Substations as well as the provision of transmission service to the proposed Pellicer, Anastatia and Vermont Substations;
2. Installing a new 300 MVA 230/115kV autotransformer at the St. Johns Substation;
3. Installing another 300 MVA 230/115kV autotransformer at the existing Millcreek Substation;
4. Installing another 300 MVA 230/115kV autotransformer at the Bunnell Substation; and

5. Adding 110 MVARs of capacitor banks throughout the Project Service Area.

The estimated capital cost of this alternative is $21.4M ($24.0M PVRR).

Alternative II was rejected for the following four reasons:

1. Serving a larger number of customers, via the additional proposed new substations, from the existing Bunnell-St. Johns 115kV transmission line could adversely impact customer reliability for the outage of the transmission line.
2. The existing Bunnell – St. Johns 115kV transmission line would have to be rebuilt and extended west to provide transmission service to the proposed future substations creating a less effective transmission system with less capability than a 230kV alternative within the Project Service Area.
3. This alternative provides limited operational flexibility and virtually no future expansion capability for the existing Bunnell-St. Johns 115kV transmission line.
4. This alternative exposes FPL customers to potential reliability concerns due to extended clearances during construction.

ADVERSE CONSEQUENCES OF DELAY OR DENIAL OF THE PROJECT

Q. Would there be adverse consequences to FPL's customers in the Project Service Area if the SJPP Project is not timely approved?

A. Yes. If the SJPP Project is not timely approved and no other alternative is built, inadequate transmission capability would result, therefore jeopardizing reliable service to existing and future customers in the Project Service Area as discussed in Section IV of Exhibit "A". The inability to serve additional loads could result in requiring the implementation of rolling outages to prevent system degradation.

Q. What would be the impact if certification of the SJPP Project were denied?

A. If certification of the SJPP Project were denied, FPL would most likely implement Alternative I as shown in Attachment 10 of Exhibit "A". The result would be that FPL would be required to address its customers' needs with a less reliable and more costly alternative and one that is not in the best long term interest of FPL's customers.

Q. Should the Commission approve the need for the Project?

A. Yes. The Commission should determine that there is a need for a 230kV transmission line connecting the St. Johns and proposed Pellicer and Pringle Substations.

Q. **Does this conclude your testimony?**

A. Yes.