

**BEFORE THE FLORIDA
PUBLIC SERVICE COMMISSION**

**DOCKET NO. 030084-EI
FLORIDA POWER & LIGHT COMPANY**

**IN RE: PETITION FOR DETERMINATION
OF NEED FOR THE
COLLIER-ORANGE RIVER #3 PROJECT**

DIRECT TESTIMONY & EXHIBIT OF:

**WILLIAM ROBERT SCHONECK
(REDACTED)**

DOCUMENT NUMBER-DATE

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1 **BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION**
2 **FLORIDA POWER & LIGHT COMPANY**
3 **DIRECT TESTIMONY OF WILLIAM ROBERT SCHONECK, JR.**
4 **DOCKET NO. 030084-EI**
5 **FEBRUARY 26, 2003**

6
7 **Q. Please state your name and business address.**

8 A. My name is William Robert Schoneck, Jr. My business address is 4200
9 West Flagler Street, Miami, Florida 33134.

10
11 **Q. By whom are you employed and what is your position?**

12 A. I am employed by Florida Power & Light Company (“FPL”) as the
13 Manager of Transmission Planning, Power Systems.

14
15 **Q. What are your responsibilities as Manager of Transmission Planning**
16 **in the Power Systems Business Unit?**

17 A. My responsibilities include managing the group that is responsible for the
18 planning, coordination, and development of FPL’s transmission expansion
19 plan in order to meet FPL customers’ needs. I have held this position and
20 had these responsibilities since October of 1993. Immediately prior to my
21 present position, I was Manager of Transmission Operations at FPL.

22
23 **Q. Please briefly describe your educational and professional background.**

1 A. I received a Bachelor of Science degree in Electric Engineering with
2 honors from the University of Florida in 1973 and a Master in Business
3 Administration degree from Florida International University in 1982. I
4 have also attended seminars and short courses covering topics related to
5 transmission planning. I have been employed by FPL since 1973.

6

7 **Q. Do you hold any positions with regional or national organizations?**

8 A. Yes. I currently participate on various committees of the Florida
9 Reliability Coordinating Council ("FRCC"). The FRCC is a voluntary
10 organization comprised of investor-owned utilities, municipal electric
11 utilities, rural electric cooperatives and other transmission users in Florida.
12 The FRCC coordinates and sets standards for the operation and planning
13 of the transmission system in Peninsular Florida. These standards are
14 consistent with and complementary to those of the North American
15 Electric Reliability Council ("NERC").

16

17 **Q. Are you sponsoring any portion of the Petition?**

18 A. Yes. I am sponsoring Exhibit "A" to FPL's Petition for Determination of
19 Need for the Collier-Orange River #3 Project ("Project") filed with this
20 Commission concurrently with my testimony on February 26, 2003.

21

22 **Q. Are you sponsoring any other exhibits?**

23 A. Yes, I am sponsoring Exhibit No.__(WRS-1).

1 **Q. Were these exhibits prepared by you or under your direction and**
2 **supervision?**

3 A. Yes.

4

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

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

- 10 1. A general description of the existing load and electric
11 characteristics of FPL's electrical transmission grid,
- 12 2. A general description of the Project including its design and
13 operating voltage, approximate range of costs, and projected in
14 service date,
- 15 3. The specific conditions, contingencies and factors which
16 demonstrate the need for the Project including a discussion of
17 FPL's transmission planning process and the reliability benefits of
18 the Project,
- 19 4. The major alternatives to the Project that were evaluated and
20 rejected by FPL in favor of the Project, and
- 21 5. The adverse consequences to FPL's electric system and customers
22 if the Project is delayed or denied.

23 **Q. Describe the organization of your testimony.**

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

11

12 **Q. How does your testimony relate to the testimony of Mr. Mennes?**

13 A. My testimony will demonstrate the need for the Project. Mr. Mennes will
14 further emphasize the need to locate the Project in a separate ROW to
15 continue to provide reliable service to FPL's customers in the area south
16 of Fort Myers, including the Naples load center.

17

18 **OVERVIEW OF FPL**

19 **Q. Please provide a brief description of FPL.**

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

1 as a large portion of southwest Florida beginning in Collier County and
2 running north through Manatee County.

3

4 **Q. Please describe FPL's existing load characteristics and the**
5 **composition of FPL's transmission network.**

6 A. FPL's existing load characteristics consist primarily of residential and
7 commercial load with limited commercial/industrial load. A listing of
8 FPL's forecasted peak load is provided in Attachment 2 of the Petition.
9 FPL's actual summer peak load in 2002 was 19,219MW and the actual
10 winter peak load in 2002-2003 was 20,190MW.

11

12 An overview of FPL's existing electrical transmission system is provided
13 in Attachments 1a and 1b to the Petition. The area south of Fort Myers is
14 bounded on the north by the Fort Myers Plant and the Orange River
15 Substation, on the west by the Gulf of Mexico and on the east by the
16 county lines of Collier and Lee. This area is referred to as the "Project
17 Service Area." As shown in Attachment 1b, there are many transmission
18 lines situated on an existing common ROW that deliver power from the
19 Orange River Substation into the area south of Fort Myers, including the
20 Naples load center. Two of the three 230kV lines on the existing common
21 ROW run from the Orange River Substation all the way south to the
22 Collier Substation. The Project would provide a third 230kV line from the
23 Orange River Substation to the Collier Substation.

1 **DESCRIPTION OF PROJECT**

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

4 A. The Project consists of a transmission line connecting FPL's Collier and
5 Orange River Substations. The proposed transmission line will be
6 constructed with a single pole design in a new ROW, and will have a
7 design and operating voltage of 230kV. Attachment 4 is a map showing
8 the electrical facilities in the Project Service Area that currently exist (in
9 black), a conceptual electrical connection for the Project (in blue), and
10 other planned facilities in the general area (in red). The locations on the
11 map of facilities not yet in service are approximate. In particular, the line
12 depicting the Project is intended to indicate conceptually an electrical
13 connection from the Orange River Substation to the Collier Substation
14 strictly from an engineering and planning perspective, without regard to
15 specific environmental and other considerations that will affect the actual
16 siting of the Project. The final length and routing of the line will depend
17 on the result of further proceedings under the Transmission Line Siting
18 Act ("TLSA") and the decision of the Governor and Cabinet, sitting as the
19 Siting Board.

20
21 **Q. What is FPL's timetable for licensing, design and construction of the**
22 **Project?**

1 A. FPL presently is evaluating corridors in anticipation of submitting an
2 application under the TLSA in the spring of 2003. The final action by the
3 Siting Board is expected in the spring of 2004. Detailed design of the
4 Project will begin as soon as a final corridor is approved. Construction is
5 expected to begin in the fourth quarter of 2004 and to be completed by
6 December 2005.

7

8 **Q. Please summarize the need for and benefits associated with the**
9 **Project.**

10 A. The need for the Project is driven by two primary considerations:

- 11 1. The need to serve the forecasted load growth in the Project Service
12 Area in a reliable manner consistent with NERC Transmission
13 System Standards.
- 14 2. The need for another electrical feed via a separate ROW path into
15 the Project Service Area to reduce the impact of a loss of the
16 transmission facilities in the existing common ROW.

17

18 In addition, the Project will provide additional benefits. To the extent the
19 Project is located in a separate ROW east of the existing common ROW
20 that serves the Project Service Area, it could facilitate future long-range
21 transmission expansion within the next 10 to 15 years to meet the expected
22 load growth. Further, a new, geographically diverse ROW could
23 minimize the need for additional ROW for future additional transmission

1 facilities, and also would allow for more efficient maintenance of the
2 transmission facilities while mitigating the risk of an impact on reliability.
3 Finally, placement of potential future long-range transmission expansion
4 facilities on the new ROW would better distribute transmission capacity
5 and further strengthen the reliability to FPL's customers.

6

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

8 A. The final route has not been selected and final costs will be subject to a
9 number of factors including the determination of the final length and route
10 of the line as determined under the TLSA. Specifically, the length and
11 route of the line, and other conditions that could be imposed through the
12 TLSA process, will affect land acquisition costs, line construction costs,
13 environmental permitting and mitigation costs, ROW preparation costs,
14 and other compliance costs. The estimated capital cost of the Project,
15 based on potential routes, is between \$23 million and \$41 million in 2003
16 dollars. The corresponding range of present value revenue requirements is
17 between \$32 million and \$57 million in 2003 dollars. This range of costs
18 is the best available estimate at this time.

19

20 **FPL'S PLANNING PROCESS**

21 **Q. Please describe FPL's transmission planning criteria.**

22 A. FPL plans its transmission system in accordance with the NERC
23 Transmission System Standards. As described in more detail in

1 Attachment 5a of the Petition, NERC Transmission System Standards are
2 divided into categories A, B, C, and D. Category A describes normal
3 system conditions (all facilities in service). Category B describes the loss
4 of a single facility, also known as a single contingency event. Category C
5 describes the loss of two or more facilities. Category D describes outages
6 due to an extreme event. Generally each category addresses the
7 performance measures and standards of the system under different
8 scenarios and circumstances.

9
10 **Q. Please describe FPL's transmission planning process.**

11 A. FPL conducts transmission studies each year to identify future
12 transmission improvements needed to maintain acceptable transmission
13 reliability. As further detailed in Section III and Attachment 5b of the
14 Petition, the process essentially consists of three major steps: (1) the
15 preparation of system models; (2) the assessment of the transmission
16 system (i.e., does the system's performance comply with the four
17 categories in the NERC Transmission System Standards); and (3) the
18 development and evaluation of alternatives, and selection of the preferred
19 project(s).

20
21 **Q. What analyses did FPL perform in determining the need for the**
22 **Project?**

1 A. In determining the need for the Project, FPL performed studies that
2 - revealed limitations on the existing 230kV and 138kV transmission
3 network in the Project Service Area. In addition, FPL assessed ROW
4 diversity. This assessment quantifies and compares the impact on
5 customer outages of building the project on the existing ROW versus
6 building the project on a separate ROW. Section IV of the Petition
7 provides a more detailed description of this assessment.

8

9 **NEED FOR THE PROJECT**

10 **Q. Please describe the existing and projected load in the Project Service**
11 **Area.**

12 A. The Project Service Area has become a major load center. As of January
13 2003, FPL provided service to approximately 357,700 customers which
14 equates to a population of approximately 594,900. These figures are
15 expected to grow at a rate of approximately 11,300 new customers
16 (approximately 18,800 people) per year. The growth rate for the Project
17 Service Area represents an incremental load of approximately 68MW per
18 year. FPL's 2002/2003 winter peak load occurred on January 24, 2003.
19 On that date, the load in the Project Service Area, which includes the loads
20 of both FPL and Lee County Electric Cooperative, was 2,156MW.
21 Presently, the forecasted load of the Project Service Area for the winter
22 peak of 2005/2006 is 2,352MW and the forecasted load for the 2006
23 summer peak is 1,980MW. The load served by the existing transmission

1 facilities has reached the point where additional transmission capability is
2 needed to maintain reliable electric service. The Project fulfills this need
3 in the most reliable and effective manner.

4

5 **Q. Please summarize the need for the Project.**

6 A. The Project is needed to maintain the reliability of service and strengthen
7 the reliability of the bulk transmission system in the Project Service Area.

8 Based on the forecasted winter peak load for 2005/2006 and the forecasted
9 summer peak load for 2006, the increase in load will result in the capacity

10 of the existing transmission system out of the Orange River Substation
11 into the Collier Substation to be exceeded under single contingency

12 events, which, if not mitigated, would be non-compliant with NERC
13 Transmission System Standards. The implementation of the Project will

14 mitigate the single contingency overloads and low voltages that would
15 occur without the Project. The Project also provides an important diverse

16 path for electrical power to flow into the Project Service Area. This new
17 path for power to flow on a geographically diverse ROW will significantly

18 reduce the number of customers who would lose power and enhance the
19 restoration of service to customers in the event of a loss of transmission

20 facilities in a common ROW.

21

22 **Q. Please describe the contingencies that require the addition of the**
23 **Project.**

1 A. As outlined in Exhibit "A" of the Petition, we analyzed load flows for the
2 year 2005/2006 winter peak load without any new transmission facilities
3 in service. As referenced on Table 1 in Exhibit "A," these analyses
4 indicate that for a single contingency event of any one of six 230kV
5 transmission line sections within the common ROW in the Project Service
6 Area could cause an outage for up to approximately 104,200 customers
7 which equates to approximately 173,200 people. In addition, our analysis
8 shows that overloads ranging from 102% to as high as 124% of the
9 thermal MVA facility rating would occur under eleven separate
10 contingencies. The NERC standards require that the facility ratings not
11 exceed 100% of the applicable facility rating. The overloads would
12 require the interruption of service of 7,200 to 41,100 customers
13 (approximately 12,000 to 68,300 people), depending on the specific
14 outage, in order to continue to operate the facilities in accordance with
15 NERC Transmission System Standards.

16
17 **Q. How would construction of the Project resolve these contingencies?**

18 A. The Project provides an additional 230kV injection into FPL's Collier
19 Substation. The construction of the Project, based on a projected in-
20 service date of December 2005, would mitigate the thermal overloads and
21 low voltage conditions caused by single contingency events in accordance
22 with NERC Transmission System Standards and would provide reliable

1 service to existing and new customers as the load in the Project Service
2 Area continues to grow.

3

4 **Q. Why has FPL proposed that the Project be constructed on a separate**
5 **ROW?**

6 A. This essential component of the Project is described more fully by Mr.
7 Mennes in his direct testimony. As part of the planning process, FPL
8 evaluates contingencies known as Category D events which I have
9 previously described. In this case, most of the existing transmission
10 facilities, including all of the existing 230kV transmission facilities used
11 to serve the Project Service Area, are located on a common ROW between
12 the Orange River and Collier Substations. In other words, the Project
13 Service Area could be currently described as an electrical peninsula as
14 shown in Exhibit No. __ (WRS-1). This electrical peninsula receives
15 power through several transmission lines that are subject to a collective
16 outage arising through such events as a plane crash or tornado. Placing
17 the new circuit in a separate ROW would provide the transmission system
18 serving the Project Service Area with a diverse path for the transmission
19 of power.

20

21 **Q. Did FPL determine the impact of the loss of the transmission facilities**
22 **on the existing common ROW in the Project Service Area?**

23

1 **A.** [REDACTED]
2 [REDACTED]
3 [REDACTED]
4 [REDACTED]
5 [REDACTED]
6 [REDACTED]
7 [REDACTED]
8 [REDACTED]
9 [REDACTED]
10 [REDACTED]
11 [REDACTED]
12 [REDACTED]
13 [REDACTED]
14 [REDACTED]
15 [REDACTED]
16 [REDACTED]
17 [REDACTED]

18 [REDACTED] **In**
19 addition, service unavailability to customers in the Project Service Area
20 could be rotated. By having the ability to rotate service unavailability to
21 customers within the Project Service Area, the majority of the customers
22 would be without power for lesser periods of time until repairs are
23 performed.

1 **Q. What conclusions have you reached regarding the need for a separate**
2 **ROW?**

3 A. In my opinion, the construction of the Project on a separate ROW provides
4 substantial reliability benefits and enhances the restoration of service to
5 customers. It will serve to substantially reduce the number of customers
6 that would lose power in the event a catastrophic event impairs the lines
7 situated in the common ROW that serve the substantial (and rapidly
8 growing) population in the Project Service Area. Moreover, the length of
9 time a particular customer would be without power could be lessened
10 since service unavailability could be rotated among some of the customers
11 in the Project Service Area.

12
13 **Q. Are there other reliability and strategic benefits associated with the**
14 **Project?**

15 A. Yes, there are three primary additional benefits. First, the reliability risks
16 associated with maintaining transmission facilities will be reduced.
17 Maintenance of one transmission line could require that other transmission
18 lines on a common ROW also be taken out of service to facilitate
19 maintenance. Therefore, placement of the Project on a separate ROW
20 would lessen the reliability impact of multiple transmission facilities being
21 unavailable during maintenance periods, thereby lowering the possibility
22 of customer outages during such periods.

23

1 Second, current load projections indicate that the load in the Project
2 Service Area is expected to continue to grow, with substantial growth to
3 the east of the existing transmission facilities in the common ROW. To
4 serve this new load, it will be necessary to site new distribution
5 substations to the east of the existing transmission lines. As depicted in
6 Attachment 4 of Exhibit "A," several of these substations have been
7 planned and others are under consideration. Transmission facilities will
8 need to be rerouted and/or constructed in the future to the east of the
9 existing common ROW in order to serve these substations. The
10 establishment of a new ROW east of the existing common ROW provides
11 an opportunity, subject to final ROW siting under the TLSA, for the more
12 efficient and cost-effective integration of these new substations into FPL's
13 transmission system to meet the expected load growth of the Project
14 Service Area.

15
16 Finally, FPL's load forecast for the Project Service Area indicates that the
17 load will grow at an average rate of 3% per year for the next nine years.
18 Developing a new ROW that may be able to accommodate another future
19 transmission line when this need materializes will facilitate the long-range
20 needs of the Project Service Area by providing opportunities for expansion
21 of the transmission system with continued diversity of transmission
22 routing.

23

1 **DISCUSSION OF ALTERNATIVES**

2 **Q. Did FPL examine any alternatives to the Project?**

3 A. Yes.

4

5 **Q. What factors were employed to evaluate the alternatives?**

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

9

10 **Q. Please summarize those alternatives and explain why they were**
11 **rejected in favor of the Project.**

12 A. FPL identified transmission improvements, as well as a generation
13 alternative, that presented the potential to meet the load growth and
14 reliability needs of the Project Service Area. Each of the alternatives that I
15 will discuss below were found to be inferior to the Project when
16 considered in light of the factors that I previously mentioned.

17

18 (1) Placement of Collier-Orange River 230kV #3 Project on Existing
19 Common ROW -- This alternative would provide a 230kV transmission
20 line into FPL's Collier Substation from the Orange River Substation using
21 the existing common ROW that already contains numerous transmission
22 lines. This alternative provides adequate voltage support and relieves
23 single contingency thermal overloads. The estimated capital cost of this

1 alternative is projected to be \$17 million in 2003 dollars. The
2 corresponding present value of revenue requirements is \$25 million in
3 2003 dollars.

4
5 However, this alternative has several major drawbacks. First, it does not
6 provide the reliability and service restoration benefits that, as I have
7 previously discussed, are important for this major load center. Second, this
8 alternative does not provide an opportunity for future expansion of FPL's
9 transmission system to integrate and serve new distribution substations as
10 the load increases in the eastern portion of the Project Service Area.
11 Finally, this alternative would not address maintenance efficiency.

12
13 (2) Orange River-Collier 500kV Transmission Line - - Under this
14 alternative, FPL would build a 500kV transmission injection into the
15 Collier/Naples area. This project would require a new transmission ROW
16 extending from a point along the existing Andytown-Orange River 500kV
17 transmission line to a substation in the Collier area (approximately 25 to
18 30 miles). The substation in the Collier area would require the installation
19 of 500kV to 230kV transformation equipment, along with the routing of
20 two of the existing Collier-Orange River 230kV transmission lines into the
21 new substation. The estimated capital cost of this alternative is projected
22 to be \$99 million in 2003 dollars. The corresponding present value
23 revenue requirements is \$138 million in 2003 dollars. This alternative was

1 rejected due to the high cost, the inability to facilitate expansion of the
2 transmission system to serve future distribution substations, and the
3 increased likelihood of being unable to meet the necessary in service date
4 of December 2005 due to the potential for increased permitting and
5 construction schedules.

6
7 (3) Alico-Orange River 230kV Transmission Line - - This alternative
8 would introduce an additional 230kV transmission line from the Orange
9 River Substation to the Alico Substation. This alternative does not fully
10 comply with NERC Transmission System Standards because it would not
11 relieve all of the thermal overloads and low voltages for two
12 contingencies. Also, the voltage support for the Project Service Area
13 would not be adequate for the more severe 230kV contingencies.
14 Therefore, this alternative was rejected.

15
16 (4) Ft. Myers-Collier 138kV Transmission Line - - Under this alternative,
17 FPL would construct an additional 138kV transmission line from FPL's
18 Fort Myers Plant into FPL's Collier Substation. Like the Alico-Orange
19 River alternative, this alternative does not comply with NERC
20 Transmission System Standards. This alternative relieves only some
21 minor single contingency thermal overloads and would not eliminate the
22 more severe 230kV transmission overloads resulting from a single
23 contingency events. Because this alternative will not relieve the thermal

1 overloads and low voltages from a single contingency, customer
2 interruptions may be necessary until the out-of-service transmission
3 facilities can be repaired. Also, the voltage support in the Project Service
4 Area would not be adequate for the more severe 230kV contingencies.
5 Therefore, this alternative was rejected.

6
7 (5) Siting Generation near the Naples load center - - FPL also considered
8 the alternative of siting new generation (2 combustion turbines) near the
9 Naples load center (e.g., Collier Substation). The estimated capital cost
10 (net present value) of this alternative is \$101 million in 2003 dollars.
11 Therefore, this alternative was rejected.

12
13 **ADVERSE CONSEQUENCES OF DELAY OR DENAIL OF THE**
14 **PROJECT**

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

17 **A.** Yes. If the Project is not timely approved and no other alternative is built,
18 inadequate transmission capability would result, thereby jeopardizing
19 reliable service to existing and future customers in this area as discussed in
20 Section IV of the Petition. Furthermore, the proposed Collier-Orange River
21 #3 transmission line should be constructed on a new ROW in order to
22 provide diversity of transmission capacity for the Project Service Area.

23

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

2 A. If certification of the Project were denied, FPL would be required to address
3 its customers' needs with a less reliable alternative and one that is not in the
4 best long term interest of FPL's customers.

5
6 **Q. Please summarize your testimony.**

7 A. The Project is needed by December 2005 to maintain the reliability of power
8 supply into the Project Service Area. The other alternatives to address this
9 situation are either too costly, do not provide the reliability needed, are not
10 viable, or do not provide for the operation of the facilities within the rated
11 thermal and voltage limits in the event of a single contingency consistent
12 with NERC Transmission System Standards.

13
14 In summary, the Project provides the following benefits: (i) provides the
15 additional transmission capacity necessary to correct thermal overloads and
16 low voltage conditions in accordance with NERC Transmission System
17 Standards; (ii) increases the reliability of electric service in the Project
18 Service Area by providing an alternative path to the Collier Substation
19 resulting in diversity of transmission routing; (iii) provides an opportunity to
20 accommodate the efficient integration and service to new distribution
21 substations identified to serve projected load growth from existing and new
22 customers in the Project Service Area in a reliable manner; and (iv)

1 facilitates and provides flexibility for the maintenance of existing
2 transmission facilities located in the common ROW.

3

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

5 A. Yes. The Commission should determine that there is a need for a 230kV
6 transmission line connecting the Collier and Orange River Substations.
7 Moreover, the Commission should recognize that there will be significant
8 reliability and other benefits to the Project Service Area if the Project is
9 located in a new, geographically-diverse ROW from the existing common
10 ROW.

11

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

13 A. Yes, it does.

ILLUSTRATION ELECTRICAL PENINSULA

