BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Petition for Determination of Need for Levy Units 1 and 2 Nuclear Power Plants	)))	DOCKET NO. 080148-EI Submitted for filing: March 11, 2008

TESTIMONY OF DALE OLIVER ON BEHALF OF PROGRESS ENERGY FLORIDA

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IN RE: PETITION FOR DETERMINATION OF NEED FOR LEVY UNITS 1 AND 2 NUCLEAR POWER PLANTS

FPSC DOCKET NO. _____

DIRECT TESTIMONY OF DALE OLIVER

I. INTRODUCTION AND SUMMARY

Q. Please state your name and business address.

A. My name is Dale Oliver. My business address is 299 First Avenue North, St. Petersburg, Florida 33701.

Q. By whom are you employed and in what capacity?

A. I am employed by Progress Energy Florida, Inc. ("PEF" or the "Company") as its Vice President, Transmission Operations & Planning. In this role, I have overall responsibility for the provision of transmission service on PEF's system, the operation of the Company's transmission system, the planning for the expansion of the PEF transmission system to meet PEF's retail and wholesale customer service requirements, and the integration of PEF's transmission system with the Florida transmission grid.

Q. Please describe your educational background and professional experience.

A. I received a bachelor's degree in electrical engineering from Georgia Tech in 1981 and an MBA from Georgia State University in 2001. Prior to assuming my current role in February, 2007, I was the Regional Vice President for PEF's South Coastal Region from October, 2005 to February, 2007, and from May 2004 to October, 2005 the Company's

Regional Vice President for the South Central Region. From 2001 to 2004, I was PEF's Director of Transmission Engineering and the Director of the Company's Commitment to Excellence program. Prior to joining PEF in January 2001, I held a number of supervisory and management positions in the transmission maintenance and operations areas for the Southern Company's Georgia Power subsidiary in Atlanta, Georgia. I am a registered professional engineer in the states of Florida and Georgia.

Q. What is the purpose of your direct testimony?

A. I will discuss the process for determining the transmission plan for the interconnection and integration of PEF's Levy Units 1 and 2; summarize the necessary transmission upgrades at the site and from the site to the Company's load centers; provide the preliminary cost estimates for the engineering, right-of-way procurement, and construction work; and explain the reasonableness of the preliminary transmission design, engineering, and resulting cost estimates at this time.

Q. Are you sponsoring any exhibits to your testimony?

A. No.

Q. Are you sponsoring any sections of PEF's Need Study for Levy Units 1 and 2?

A. Yes. I sponsor Section III.G of the Need Study.

Q. Please summarize your testimony.

A. PEF followed an industry accepted evaluation process to develop the transmission-related requirements for the Levy Units 1 and 2 generating facilities. Based on this review, which we continue to refine, PEF will need to construct several new substations and upgrade its existing transmission system to accommodate the approximately 2,200 megawatts ("MW") of generating capacity on to its system. Based on our initial analysis, PEF also will need to add approximately 120-150 miles of new 500 kV and 230 kV and will need to rebuild and upgrade various existing 69 kV, 115 kv and 230 kv transmission facilities, transmission lines through ten counties. This will be one of, if not the, largest transmission construction projects in Florida's history.

Based on our preliminary review, costs could range from $1.85 billion to at least $2.5 billion excluding AFUDC. This estimate was developed using the best information available to the Company at this time. Given the number of years over which the project will be engineered, land acquired, and facilities constructed, the estimated costs could be lower or higher. For example, because PEF will not know the specific, final routes until the end of 2008, will not begin procuring rights-of-way until late-2008 (which likely will continue for several years thereafter), and will not lock in contracts to construct the facilities for several years, the ultimate costs and scope of the necessary transmission upgrades will not be more definitively known for some time. The costs therefore could, and likely will, change over time depending upon, among other things: the final routes selected; land acquisition costs; permitting and licensing delays at both the state and federal level; litigation delays at both the state and federal level; labor and equipment availability; vendor ability to meet schedules; cost escalations; the imposition of new regulatory requirements; the ability to acquire necessary rights-of-way in a timely manner

for all associated facilities, including those necessary to construct the new 500 kV and 230 kV transmission lines; inflation or an increase in the cost of capital; and the ability to obtain and maintain financing at reasonable terms. Finally, the transmission related requirements for the Levy Units 1 and 2 could be affected by changes in the Federal Energy Regulatory Commission ("FERC") mandated OASIS Queue for generator interconnection requests and transmission service requests. Changes in these areas also could effect the scope and cost of the project.

II. EVALUATION PROCESS FOR DETERMINING PEF'S TRANSMISSION SYSTEM REQUIREMENTS FOR LEVY UNITS 1 AND 2

Q. How does your organization conduct transmission planning to ensure grid reliability when considering the addition of new generation resources?

A. My organization first analyzes the ability of the planned system to meet the reliability criteria as outlined in the FERC Form 715 filing. This involves the use of load flow and transient stability programs to model various contingency situations that may occur, and then determining if the system response meets the reliability criteria. In general, this involves running simulations for the loss of any single line, generator, or transformer. PEF normally runs this analysis for system load levels from minimum to peak for all possible contingencies, and for both summer and winter. Additional studies are performed to determine the system response to credible, less probable criteria, to assure the system meets PEF, Florida Reliability Coordinating Council ("FRCC"), and North American Electric Reliability Corporation ("NERC") criteria. These studies include the loss of multiple generators or lines, and combinations of each. Some load loss is permissible in more severe disturbances. PEF further evaluates these credible, less

probable scenarios at various load levels, as some of the more severe situations occur at average or minimum load conditions. In particular, critical fault clearing times are typically the shortest (most severe) at minimum load conditions, with just a few large base load units supplying the system needs.

Q. *Please describe the process PEF uses to evaluate the transmission interconnection and integration of new generation resources.*

A. PEF's Transmission Planning Organization first evaluates the proposed generating plant's proximity to existing PEF transmission facilities. To the extent transmission facilities are not located nearby, we will analyze and identify the facilities necessary to interconnect the plant to the closest existing transmission facilities. We then assess the existing facilities to determine their capability for reliably interconnecting and integrating the proposed new generating facility as a firm PEF generation resource. We then consider other factors prior to integrating a new generating unit into the Company's bulk electric system. These include:

- The megawatt ("MW") amount of generation being added at the generation site, and the various dispatch profiles of the new generation resource relative to PEF's other generation resources serving PEF's customers and other utilities' load in the region;
- Compliance with NERC and FRCC reliability standards;
- Stability and system protection impacts;
- Capabilities to upgrade existing facilities, including substations and existing lines;
- The ability to site the new transmission facilities, including the ability to acquire the needed rights-of-way; the ability to obtain any necessary permits; and the estimated

time it will take to acquire the rights-of-way and permits in order to meet the project schedule;

- The ability to construct the transmission facilities without having to take other lines out of service during periods that would result in an adverse reliability impact;
- The impact, if any, on existing facilities, including whether the proposed interconnection and integration plan would overload an existing facility or result in a materially adverse impact on other parts of PEF's system;
- The expected in-service testing and commercial operation dates for new generation, which determines when the transmission facilities must be completed and operational;
- Operating considerations, such as maintenance requirements for the new facilities, and their impact on the ongoing operation of the existing system;
- Potential impacts on third party transmission systems; and
- The initial and recurring costs of the facilities and operations.

Q. What are the next steps in your evaluation process, after you consider the factors noted above?

A. The next step is to perform power flow studies for the proposed interconnection and integration plan. We use these studies to evaluate overall system performance under the proposed interconnection and integration plan. Power flow studies also help to better identify the specific new facilities and system upgrades that may be required as a result of adding the new generating resource at the specific location on PEF's system. We then determine whether the proposed interconnection and integration plan complies with NERC and FRCC reliability standards. Once these standards are met, the plan is

complete.

Q. To your knowledge, are the evaluations described above typically used by the industry to assess the transmission needs when adding new generation resources?

A. Yes, the approach described above is commonly used by utilities in the industry.

Q. Did your organization employ this evaluation process to evaluate the transmission needs for the addition of Levy Units 1 and 2 to PEF's system?

A. Yes, we used the same evaluation for Levy Units 1 and 2. The results of this evaluation are detailed in Section III below.

III. ASSOCIATED TRANSMISSION FACILITIES REQUIRED FOR LEVY UNITS 1 AND 2

Q. Please generally describe the associated transmission facilities required for Levy Units 1 and 2.

A. Generally, the required transmission facilities fall into three categories: interconnection facilities; integration upgrades; and impacts, if any, on third party transmission owners' facilities. Transmission interconnection facilities include the facilities necessary to actually connect the Levy plants to PEF's existing transmission system, such as a new switchyard, generator step-up transformers, and other equipment necessary to connect the plant to the grid. Transmission integration facilities include upgrades to the existing PEF transmission system necessary for the reliable operation and delivery of power from the new Levy units to PEF's grid. These integration facilities include the construction of new substations on PEF's transmission system, upgrades to existing transmission lines,

and the construction of new transmission lines throughout portions of PEF's service territory, including new 500 kV. Finally, impacts to third party transmission owners' facilities means what, if any, upgrades or modifications to other utilities' transmission systems are required as a result of adding the two Levy plants to PEF's system. In this case, our analysis shows that there may be some impacts to any other utilities transmission systems. Through the OASIS process and FRCC joint planning process, however, all third party transmission owners will have the opportunity to validate this analysis and assist in the resolution of this issue.

Q. Please describe the transmission interconnection requirements for Levy Units 1 and 2.

A. The transmission interconnection requirements for Levy Units 1 and 2 will consist of multiple 500 kV and 230 kV lines and transformers, plus associated station service equipment. At this time, we expect this to include a new substation at the Levy site, which will consist of 500 kV and 230 kV busses, with associated transformers, and four 500 kV circuits exiting the site.

Q. Please describe the transmission integration upgrades and new transmission facilities required for Levy Units 1 and 2.

A. Based on our initial estimates to date, we expect the need to construct the following associated transmission facilities to integrate the Levy plants in to PEF's transmission system:

- Add two new 8-mile 500 kV circuits from the Levy complex to the new Citrus Substation site near PEF's existing Crystal River East Substation;
- Add one new 13-mile 500 kV circuit from the Levy complex to PEF's Crystal River Plant Switchyard;
- Add one new 55-mile 500 kV circuit from the Levy complex to PEF's new Central Florida South Substation located south of PEF's existing Central Florida Substation;
- Potentially add one new 30-mile 500 kV circuit from the new Citrus Substation to PEF's existing Brookridge Substation;
- Potentially add one new 38-mile 500 kV Circuit from the Brookridge Substation to PEF's existing Lake Tarpon Substation;
- Add one double circuit capable 50-mile 230 kV circuit from PEF's Lake Tarpon Substation to PEF's existing Kathleen Substation;
- Add one new 500/230 kV two bank Substation (Citrus) near PEF's existing Crystal River East Substation;
- Add one new 500/230 kV two bank Substation (Central Florida South) near PEF's existing Central Florida Substation;
- Tie the Crystal River Plant 500 kV and 230 kV switchyards together creating a two bank 500/230kV Substation;
- Expand the Brookridge 500 kV facilities to add one 500/230 kV bank;
- Potentially expand the Lake Tarpon 500 kV and 230 kV facilities;
- Expand the Kathleen 230 kV buss;
- Replace various over-dutied breakers at the Crystal River and other substations; and

- Various lower voltage lines and substation upgrades throughout the system which includes nearly 300 miles of 230 kV, 115 kV 69 kV lines, as well as the addition of transformer capacity at four substations.

Q. From a reliability standpoint, are there any other factors that must be considered when determining what additional transmission facilities are necessary?

A. Yes, the utility must consider whether the additional unit will be the single largest generator in the FRCC region.

Q. Will Levy Units 1 or 2 be the single largest generator in the FRCC?

A. Yes. Levy Unit 1 is scheduled to commence commercial operation in June 2016, and have a nominal Winter rating of 1100 MW gross output. This would make it the single largest unit in the FRCC region at that time.

Q. What is the significance of Levy Unit 1 or 2 being the largest unit?

A. This is significant because the peninsular Florida transmission system must be capable of sustaining the loss of the single largest generator without violating any NERC or FRCC reliability standards. In other words, if Levy Unit 1 or 2 were to trip (shut down unexpectedly), an equal amount of power source must be dispatched in less than 15 minutes to mitigate that loss.

Q. What, if any, impact will Levy Units 1 or 2, as the single largest generator, have on peninsular Florida's overall grid reliability?

A. It should not have any adverse impact on grid reliability. Based on our analysis, the unexpected outage of Levy Unit 1 or 2 should not adversely impact FRCC's import capability from the Southeast Electric Reliability Council ("SERC"), and not violate any FRCC or NERC reliability criteria. Thus no additional transmission facilities are necessary specifically to address the fact that Levy Unit 1 or 2 will be the largest unit.

IV. COST ESTIMATES FOR ASSOCIATED TRANSMISSION FACILITIES REQUIRED FOR LEVY UNITS 1 AND 2

Q. What are the estimated costs at this time of the required associated transmission facilities?

A. Based on our initial estimates, the transmission costs could range from a low of $1.85 billion to at least $2.5 billion excluding AFUDC.

Q. How did you arrive at this estimate?

A. We developed these estimates based on the Company's most recent costs to construct new 230 kV transmission facilities, including the cost of land acquisition, materials, equipment, and labor, and our best estimate of where possible routes may be sited. Engineering consultants and internal engineering and right of way personnel worked together to create the cost estimates for the likely transmission and substation projects listed above. We created costs estimates using the latest available costs for similar transmission work performed by the Company and in the industry. We based the transmission line estimates on the latest average industry per mile costs (labor and materials) exclusive of right-of-way costs. We calculated right-of-way costs based on the average per acre cost for property for the existing land use category (urban, rural,

agricultural) in the applicable county. We also included estimated legal costs associated with eminent domain. We estimated substation costs based on the latest costs for similar facilities on our system and in the industry. We adjusted these estimates to reflect the amount of major equipment (such as transformers and breakers) associated with the particular substation. We calculated estimates in current year costs, which we then escalated for the year of the expected expenditure.

Q. Were these estimates developed consistent with industry practice?

A. Yes, the estimates were developed on a reasonable engineering basis, using the best available information to the Company. This is consistent with how others in the industry develop estimates for similar projects.

Q. *Could these estimates change over time?*

A. Yes, and they almost certainly will, as we further define the specific routes, begin to acquire rights-of-way, and go out for bid in the next several years for construction services. The estimated costs are also dependent upon, among other things, land acquisition costs; permitting and licensing delays at both the state and federal level; litigation delays at the state, federal, and local level; labor and equipment availability; vendor ability to meet schedules; cost escalations; the imposition of new regulatory requirements; the ability to acquire necessary rights-of-way in a timely manner for all associated facilities, including those necessary to construct the new and upgraded transmission lines to reliably deliver the power from the energy complex to our customers; inflation or an increase in the cost of capital; and the ability to obtain and

maintain financing at reasonable terms. Any one of these factors and possibly others could affect the cost of the transmission project in a positive or negative way. We will, of course, provide annual updates to the cost estimates to this Commission pursuant to the Commission's nuclear cost recovery rule.

Q. Does this conclude your testimony?

A. Yes, it does.