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COMMISSION
CLERK

Ann Cole, Commission Clerk
Florida Public Service Commission
2540 Shumard Oak Blvd
Tallahassee 32399

Re: Docket No. 080148 -EI
Petition for Determination of Need for Levy Units 1 and 2
Nuclear Power Plants on behalf of Progress Energy Florida

Dear Ms. Cole:

Enclosed for filing on behalf of Progress Energy Florida are the original and 15 copies of each of the following:

1. Petition for Determination of Need for Levy Units 1 and 2 Nuclear Power Plants; 01792-08
2. Testimony of John Benjamin Crisp with attached Exhibits JBC-2 through JBC-9; 01793-08
3. Exhibit JBC-1, Need Determination Study in Support of Petition for Determination of Need for Levy Units 1 and 2 Nuclear Power Plants; 01794-08
4. Testimony of J. Michael Kennedy with attached Exhibits JMK-1 through JMK-4; 01795-08
01796-08
5. Testimony of Jeffrey J. Lyash; 01797-08
6. Testimony of John A. Masiello with attached Exhibits JAM-1 through JAM-3; 01798-08
7. Testimony of Robert D. Niekum with attached Exhibits RDN-1 through RDN-4; 01799-08
8. Testimony of Dale Oliver; 01800-08
9. Testimony of Javier Portuondo with attached exhibits JP-1 through JP-3; 01801-08
10. Redacted Testimony of Daniel L. Roderick with attached exhibits DLR-1 through DLR-6; 01802-08
11. Testimony of John Siphers with attached Exhibits JS-1 through JS-4; 01803-08
12. Testimony of Sasha A. Weintraub with attached Exhibits SAW-1 through SAW-9; and 01804-08
13. PEF's First Request for Confidential Classification of Confidential Portions of Testimony and Exhibits Filed in Support of Petition for Determination of Need for Levy Units 1 and 2 Nuclear Power Plants. 01805-08
14. Notice of Filing Unverified Affidavit of Daniel L. Roderick in support of Progress Energy's First Request for Confidential Classification.

CMP _____
 COM 5
 CTR 1
 ECR 4 CD
 GCL 2
 OPC 1
 RCA _____
 SCR _____
 SGA _____
 SEC _____
 OTH _____

01806-08 Confidential (Roderick)
01807-08 Justification
01808-08 Notice of Filing Affidavit Roderick



Ann Cole
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Also enclosed is a computer diskette containing the petition in Word format and all of the documents in PDF format for your convenience in downloading to the website. Please contact me if you have any questions regarding this filing.

CD Forwarded to ECF

Sincerely,

A handwritten signature in black ink, appearing to read 'RAG', with a long horizontal line extending to the right.

R. Alexander Glenn
Deputy General Counsel

RAG/sc
Enclosures

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-E1

Submitted for Filing: March 11, 2008

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

Pursuant to Section 403.519(4), Fla. Stats., Rules 25-22.080, 25-22.081, and 28-106.201 F.A.C., Progress Energy Florida ("PEF" or the "Company"), petitions the Florida Public Service Commission ("PSC" or the "Commission"), for an affirmative determination of need for its Levy Units 1 and 2 nuclear power plants, together with the associated facilities, including transmission lines and substation facilities, needed to integrate Levy Units 1 and 2 with PEF's transmission network for delivery of electrical power to PEF's customers.

Levy Units 1 and 2 are expected to be two 1,092 (summer rating) megawatt ("MW"), advanced passive light water nuclear reactors. Levy Units 1 and 2 will be located at the Company's new energy complex in Levy County, Florida. The Company proposes to place Levy Unit 1 in commercial service by June 2016 and Levy Unit 2 in commercial service by June 2017. To this end, PEF will soon file its application for Site Certification with the Florida Department of Environmental Protection ("DEP"), and PEF currently plans to file its combined construction and operating license application ("COLA") for Levy Units 1 and 2 with the U.S. Nuclear Regulatory Commission ("NRC") in the third quarter of 2008. Further, to maintain this schedule for commercial service of Levy Units 1 and 2, and provide customers the benefits of low-cost fuel, emission-free nuclear power generation by 2016 and 2017, PEF must proceed with and obtain a need determination for Levy Units 1 and 2 at this time.

Progress Energy Florida

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PEF is submitting in support of this Petition a Need Study (as Exhibit 1 to the Direct Testimony of John Benjamin Crisp), which develops more fully the information required by Rule 25-22.081, F.A.C., as well as the testimony of other Company witnesses.

I. FRAMEWORK FOR NEED DETERMINATIONS FOR NUCLEAR GENERATION FACILITIES.

1. The Commission must determine the need for Levy Units 1 and 2 under the amended need determination provisions of Section 403.519(4). These amendments were part of the Florida Renewable Energy Technologies and Energy Efficiency Act of 2006. The Florida Legislature, like Congress in passing the federal Energy Policy Act of 2005 (“EPACT”), enacted the Florida Renewable Energy Technologies and Energy Efficiency Act to encourage the development of nuclear generation. The Florida Act, among other things, provided for alternative cost recovery during the site selection, pre-construction, and construction phases to spread out the rate impact on customers and assist the utilities in bearing the risk of the significant costs necessarily required to develop additional nuclear generation. This built upon EPACT through which Congress provided financial incentives for nuclear development in the form of production tax credits and loan guarantees.

2. The Florida Act further altered the paradigm for need determinations for nuclear generation plants. The determination of need for a proposed electrical power plant using nuclear materials must be based on (1) the need for electric system reliability and integrity including fuel diversity, (2) the need for base-load generating capacity, (3) the need for adequate electricity at a reasonable cost, and (4) whether renewable energy sources and technologies, as well as conservation measures, are utilized to the extent reasonably available. Further, the Florida Legislature specifically determined that certain matters were relevant and therefore must be

considered in determining the need for the nuclear power plant. These are whether the proposed nuclear power plant will (1) provide needed base-load capacity, (2) enhance the reliability of electric power production within the state by improving the balance of power plant fuel diversity and reducing Florida's dependence on fuel oil and natural gas, and (3) provide the most cost-effective source of power, taking into account the need to improve the balance of fuel diversity, reduce Florida's dependence on fuel oil and natural gas, reduce air emission compliance costs, and contribute to the long-term stability and reliability of the electric grid.

3. Under this new legislative paradigm, the reliability need for nuclear power is not determined by its contribution to reserve margins or loss of load probabilities alone. Rather, the *contribution of the nuclear power plant to utility and Florida fuel diversity, fuel supply reliability, and needed base load capacity* are equally critical need considerations. Similarly, cost-effectiveness cannot be determined without regard to those issues. The Florida Legislature fully appreciated the significant and indeterminate cost of developing additional nuclear generation, including the length of time necessary to site, license, and construct new nuclear power plant facilities. The amendment specifically provided that a "nonbinding" estimate of the nuclear power plant cost be presented in the need case, necessarily requiring that the economic evaluation of nuclear compared to other generation proceed from such a preliminary cost estimate. This particular amendment demonstrates too that the Legislature recognized that the need determination would be made based on a cost estimate that likely would change as the project moved forward. Further, the Florida Legislature recognized that economic value might not be determined just by comparing the non-binding cost estimate for nuclear generation to the cost of other generation alternatives. Rather, the nuclear power plant might be the most cost-effective source of power to customers because the plant improved fuel diversity, reduced

Florida's dependence on fuel oil and natural gas, or improved the quality of Florida's air and environment in an era of global warming and other air emissions concerns.

4. PEF followed this legislative paradigm in its evaluation of its need in 2016 and beyond. As more fully explained below, in its Need Study, and through the testimony and exhibits of its witnesses, PEF made its determination that Levy Units 1 and 2 were needed and the most cost-effective source of power to customers after fully accounting for the express considerations for nuclear power plant need determinations that the Florida Legislature set forth. Levy Units 1 and 2 will meet a reliability need in 2016 and beyond, while capturing cost-saving efficiencies and economies of scale from the successive construction of two nuclear power plants. Levy Units 1 and 2 will help the Company achieve greater fuel diversity and will enhance fuel supply reliability and security. The Levy units will avoid 864 million tons of carbon dioxide ("CO₂"), 1.4 million tons of NO_x, 5.8 million tons of SO₂, and 28,800 pounds of mercury over a sixty-year time frame and will, accordingly, position the Company to better respond to existing fossil fuel environmental regulations and future greenhouse gas ("GHG") regulations.

5. Levy Units 1 and 2 will be expensive, however, even based on preliminary, non-binding cost estimates that do not yet fully reflect all site-specific cost adjustments. They may be even more expensive, once all of these costs are accounted for or as costs are incurred and circumstances change over the next decade by the time they achieve commercial operation in 2016 and 2017. On economics alone, natural gas-fired, combined cycle plants cost less to build and their capital costs tend to be more certain than construction projects of the duration and magnitude of new nuclear and associated transmission facilities. Over the traditional, thirty-year study period in the production cost analysis of the economics of nuclear generation, natural gas

generation is comparatively cheaper. But this traditional production cost study period captures only one-third of the likely sixty-year useful life of Levy Units 1 and 2 because there are ten years of permitting, siting, and construction prior to commercial operation of Levy Units 1 and 2. When one analyzes the nuclear project over sixty years, and takes into account the air emission compliance cost, fuel diversity, and fossil fuel dependence concerns that the Florida Legislature requires the utility to consider, nuclear is generally more cost-effective than an all natural gas resource plan, and then based only on the preliminary, non-binding cost estimate. As that cost estimate is refined over time and the costs of the nuclear power plants become clearer, nuclear generation may be even more expensive than building natural gas-fired, combined cycle power plants, even significantly more so.

6. A choice must be made, however, between the old generation supply paradigm and a new one advanced by the considerations required for nuclear need determinations under the 2006 Florida Act. Natural gas-fired, combined cycle plants will, of course, continue to be an important part of the generation supply for PEF and Florida. Natural gas generation plants are cheaper to build, cost estimates are more reliable, and the time to site, permit, design and build natural gas plants is shorter and more certain than nuclear generation plants. But a generation supply paradigm that relies solely on natural gas for future generation will produce a situation where 85 percent of PEF's energy generation in 2018 will be from fossil fuels, that is oil, natural gas, and coal.

7. An all fossil fuel resource plan exposes PEF and its customers to more volatile price changes in natural gas and oil and potentially expensive environmental emission costs from existing and future fossil fuel environmental regulations, including potential GHG regulations. By 2018, under this predominant, fossil fuel, generation supply paradigm, PEF's generation

system would be much less fuel diverse, PEF and thus Florida would be more dependent on natural gas and oil from foreign supply sources, PEF's supply reliability would be less certain, especially during hurricanes and other supplier disruptions, and PEF and its customers would be more exposed to potentially costly GHG regulations. More importantly, due to projected demands on equipment manufacturers in the international supply chain and the availability of qualified construction personnel, if natural gas is the default generation supply paradigm through 2018, the Company will require at least another decade of reliance on natural gas and other fossil fuels to supply customer energy needs before nuclear generation can again be added to the generation supply mix. That means PEF's energy mix from generation would not change significantly, but would remain dependent on fossil fuels at 85 percent for customer energy needs, for a significant period of time into the future.

8. Alternatively, there is an opportunity now to add additional nuclear generation to the Company's generation supply mix. Further, building two nuclear plants will drive the capacity unit cost of nuclear capacity for Levy Units 1 and 2 below nuclear design-specific unit capacity costs for a single unit, providing substantial, long-term economic benefits to customers. With Levy Units 1 and 2, PEF will maintain its position as the most fuel-diverse utility in Florida, with 38 percent of total energy needs in 2018 met with nuclear generation and only 6 percent more natural gas generation than exists today. PEF and Florida will be less dependent on foreign sources of fossil fuels and supply reliability will be improved, making PEF and its customers less exposed than today to volatile fluctuations in fossil fuel prices. Additionally, PEF will have added substantial energy generation to its system with no GHG or other emissions, improving PEF's and its customers' position in the face of current air emissions regulations and future GHG emission costs.

9. Faced with this stark choice between future generation supply portfolios, PEF chose the future generation supply paradigm which includes additional nuclear generation. However, developing nuclear generation for the future certainly is a costly and higher risk venture now and it will continue to be a costly and higher risk venture until the units are placed in commercial operation. To see this through to commercial operation of Levy Units 1 and 2 will take considerable resolve and a substantial commitment of the Company's resources. But PEF evaluated Levy Units 1 and 2 under the amended need determination provisions of the 2006 Florida Act, as directed by the Florida Legislature, emphasizing the considerations the Florida Legislature wanted to emphasize to encourage the development of nuclear generation in Florida. PEF concluded that those considerations warranted the choice of a future generation supply paradigm that includes nuclear generation and at this time has resolved and committed the resources to make that generation supply paradigm possible.

10. PEF must now put before the Commission the same choice between a generation supply paradigm that relies solely on natural gas and other fossil fuels, or a new one that includes nuclear generation for the long-term future energy needs for Florida. If the Commission believes there is substantial value to PEF customers from fuel diversity and supply reliability, less dependence on fossil fuels from foreign sources, and less exposure to GHG regulations in the future --- which PEF believes is the case after evaluating its need in 2016 and 2017 consistent with Legislative direction --- then the Commission should grant PEF's Petition and approve this new generation supply paradigm for meeting customer energy needs in the future.

11. This decision must be made now to ensure that there is a future generation supply alternative that includes nuclear generation. Right now, there is no generation supply option other than natural gas generation reasonably available in sufficient capacity to PEF and other

Florida utilities before 2016 at the earliest. If PEF's current determination of need is denied or delayed, PEF's ability to develop nuclear generation in Florida may be postponed for a significant period of time, given the limited availability of equipment and personnel to meet demand projections. Little choice will remain for PEF but to rely on natural gas-fired generation to meet future customer needs. The Company believes that the State should not place all of its eggs in the natural gas generation basket, and the risks associated with a generation supply paradigm that relies almost completely on natural gas and other fossil fuels. Rather, the Company believes that the right choice is to ensure the possibility of an alternative future generation supply paradigm in the next two decades and beyond for PEF and its customers. As a result, we ask the Commission to approve PEF's need determination for Levy Units 1 and 2.

II. PRELIMINARY INFORMATION.

12. The Petitioner's name and address are:

Progress Energy Florida
299 1st Avenue North
St. Petersburg, Florida 33701

13. All pleadings, motions, orders, and other documents directed to Petitioner should be served on the following:

Alex Glenn
John Burnett
Progress Energy Florida
299 1st Avenue North
St. Petersburg, Florida 33701

Paul Lewis, Jr.
Progress Energy Florida
106 East College Avenue, Suite 800
Tallahassee, Florida 32301-7740

James Michael Walls
Dianne Triplett
Carlton Fields
Post Office Box 3239
Tampa, Florida 33607-5736

14. All pleadings, motions, orders, and other documents served by hand or express courier to Petitioner should be served on the following:

Alex Glenn
John Burnett
Progress Energy Florida
299 1st Avenue North
St. Petersburg, Florida 33701

James Michael Walls
Dianne Triplett
Carlton Fields
Corporate Center Three
4221 W. Boy Scout Blvd.
Tampa, Florida 33607-5736

III. PRIMARILY AFFECTED UTILITY.

15. PEF, the Petitioner for the determination of need, is the utility primarily affected by the proposed power plants. PEF is an investor-owned electric utility, regulated by the Commission, and is a wholly owned subsidiary of Progress Energy, Inc. PEF currently serves approximately 1.7 million customers in its service area in Florida. PEF's service area comprises approximately 20,000 square miles, encompassing the cities of St. Petersburg and Clearwater and densely populated areas surrounding Orlando, Ocala, and Tallahassee. More than five million people live in PEF's service area. PEF further supplies electricity at retail to approximately 350 communities and at wholesale to about 21 Florida municipalities, utilities, and power agencies in the State of Florida.

16. Florida, with a population of more than 17 million, is currently the fourth most populous state in the country. Florida's growth has been consistent, and continues, with the State adding over 1,000 new residents a day. PEF's service territory has shared in this growth. During the past two decades more than 600,000 homes and businesses were added to PEF's system, and the Company's customer base has grown by 157 percent since 1975, from 622,000 customers to about 1.7 million today. PEF will continue to share in Florida's population growth. Even with expected slower population growth based on more recent experience and due to recent economic conditions affecting the Florida housing and construction markets, for example, PEF's customer growth is still expected to average 1.8 percent between 2008 and 2017. Indeed, PEF has added on average 30,000 and 40,000 new customers (homes and businesses) to its service area over the last three years. That growth is equivalent to adding a medium-sized city.

17. Florida homes and businesses are using more electricity too. Florida's per-capita electricity use currently ranks third in the country. Many factors contribute to this high and growing consumption of electricity, including the size of homes, the prevalence of air conditioning in Florida due to the subtropical environment, and more electronic equipment in homes and businesses that, even with technological advances in energy efficiency, consume an increasing amount of electricity. The average new home in Florida is 54 percent larger today than in 1970 and 12 percent larger than in 1990. Use of air conditioning in Florida is now nearly universal when, for example, in 1980 only about two-thirds of homes in the south had air conditioning. Computers, electronic games, plasma-screen TVs (which use more electricity than a refrigerator, traditionally the third-largest source of electrical use in a typical home), and other electronic devices have increased in number and use in each home and business. As a result, per-capita electricity usage among PEF's customers in Florida has grown more than 53 percent

since 1975. Increasing electricity use by customers is expected to continue to contribute to increased load growth, which is expected to increase by approximately 2.5 percent between 2008 and 2017, with an average growth of 1.9 percent in the summer and 2.4 percent in the winter.

18. With the 2006 Florida Renewable Energy Technologies and Energy Efficiency Act, and subsequent executive and administrative actions, there has been a concerted effort to develop a comprehensive state plan to meet Florida's growing future energy needs. This plan focuses on energy efficiency to reduce energy demand, renewable fuel and other domestic fuel sources, and cleaner energy production through nuclear and gasified coal generation. Consistent with this plan, PEF has a balanced approach to meeting the needs of its customers for reliable, cost-effective electrical power over the next generation. PEF's balanced approach includes investing in existing renewable energy resources, increasing the Company's long-standing investment in energy efficiency and other load reduction or load management programs, and investing in future renewable energy and energy efficiency technologies. Even with the increased investment in energy efficiency and renewable energy resources, however these resources still cannot satisfy all future customer needs for electrical power. The Company's balanced approach includes the need to plan for and build new generation resources to ensure that the electrical power needs of households and businesses in its service area are met.

Continued plans for additional generation to meet customer needs are essential to maintaining the standard of living and robust economic opportunities the Company's customers expect.

19. PEF currently operates the most diverse mix of power plants in Florida to meet the electrical power needs of its customers. The Company has a total summer and winter net capacity generation resource of approximately 9,293 MW and 10,285 MW, respectively. The summer capacity resources include utility purchased power (484 MW), non-utility purchased

power (1,438 MW), combustion turbine (2,501 MW), nuclear (769 MW), fossil steam (3,899 MW), and combined cycle plants (2,134 MW). These capacity resources use nuclear, natural gas, coal, oil, and renewable fuel sources. Currently, these fuel sources account for 14 percent (nuclear), 30 percent (natural gas), 43 percent (coal), 10 percent (oil), and 3 percent (renewable) of PEF's energy generation. A more detailed description of PEF's generating resources is set forth in Tables 1 and 2 to the Need Study, submitted in support of this Petition as Exhibit 1 to the Direct Testimony of Ben Crisp.

20. On the non-generating resource side, PEF has been a leader in demand-side management ("DSM") and implementing energy efficiency programs in the State of Florida since 1981 when the Florida Energy Efficiency and Conservation Act ("FEECA") became effective. PEF in fact has one of the most robust DSM and energy efficiency programs in the country. PEF is ranked third in the nation for load management peak demand reduction with a reduction of 17 percent of peak load, and PEF is ranked fourth in the nation for energy efficiency megawatt-hour ("MWh") saved for utilities with 1.5 million customers or higher, based on the Department of Energy's 2006 data. Over the more than two decades PEF has implemented DSM and energy efficiency programs, customers have saved 10 billion kilowatt hours and over 1,500 MW, which is equivalent to avoiding three new 500 MW generating power plants. Such programs have also avoided significant emissions into the air, including avoiding over 7,500,000 tons of carbon dioxide (CO₂) emissions, which is equivalent to removing 1,900,000 cars from Florida roads each year. PEF has continued to pursue the research and development of additional or modified DSM programs to reduce and control the growth rate of energy consumption, increase the conservation of resources, and increase the efficiency of the electric system. Under PEF's current programs, approximately 389,000 customers participated at the

end of 2006, contributing about 750,000 kW of winter peak-shaving capacity for use during high load periods. These resources include non-dispatchable DSM, interruptible load, and dispatchable load control resources. The Company's total DSM resources are shown in Schedules 3.1.1, 3.1.2, 3.1.3, 3.2.1, 3.2.2, 3.2.3, 3.3.1, 3.3.2, and 3.3.3 of PEF's most recent Ten-Year Site Plan (April 2007).

21. The Company is part of a nationwide interconnected power network that enables interconnected utilities to exchange power. PEF's transmission system includes approximately 5,000 circuit miles of transmission lines. The Company's distribution system includes approximately 18,000 circuit miles of overhead distribution conductors and approximately 13,000 miles of underground cable.

IV. PROPOSED NUCLEAR POWER PLANTS.

22. Levy Units 1 and 2 are expected to be state-of-the-art, advanced passive light water nuclear power plants. After a detailed and thorough technical analysis, PEF has initially selected and is currently evaluating the Westinghouse Advanced Passive ("AP") 1000 light water nuclear reactor design for Levy Units 1 and 2. Westinghouse is the nuclear industry leader with nearly 50 percent of the world's current nuclear plants based on Westinghouse technology. The expected summer and winter capacity ratings of the Westinghouse AP1000 Levy Units 1 and 2 are 1,092 MW and 1,120 MW, respectively. These capacity ratings are derived from the nominal 1,100 MW capacity rating that is the most cost-effective, efficient capacity design for this generation of nuclear power as determined by Westinghouse. The Westinghouse AP1000 advanced passive reactor design is one of the safest nuclear power plant designs available in the worldwide commercial marketplace and it has received Design Certification from the NRC.

23. Levy Units 1 and 2 will be highly efficient, base load nuclear power plants. They are expected to have low forced and planned outage rates, with the highest expected equivalent availability and capacity factors on PEF's generation fleet. Essentially, these units are expected to and will operate year-round. Processed uranium will be the fuel for the two units. Nuclear fuel is currently the most price stable and lowest cost fuel available to the Company for energy generation. Levy Units 1 and 2 will provide needed capacity and energy in a reliable manner.

24. The preferred site selected for Levy Units 1 and 2 consists of approximately 3,100 acres located in Levy County, Florida, about ten miles north of the Company's Crystal River Energy Complex, and eight miles inland from the Gulf of Mexico on the west coast of Florida. The proximity of the Levy County site to the Company's existing nuclear plant will provide opportunities for efficiencies in shared support functions at both sites. Levy Units 1 and 2, together with the necessary associated site facilities, will occupy approximately ten percent of the 3,100 acre site, with a significant portion of the remaining acreage used as a buffer preserve. PEF chose the Levy County site following a comprehensive review of all potential sites within and surrounding PEF's service territory, in which PEF assessed among other criteria: land suitability, access to sufficient quantities of water, access to the electric transmission system, and overall environmental considerations. In addition, PEF has purchased an additional 2,100 acre tract contiguous with the southern boundary of the Levy site, which secures necessary access to an ocean water supply as well as transmission exits from the plant site.

25. Because the two units will be located on a "Greenfield" site, transmission and site infrastructure must be constructed along with the buildings necessary for the power units. The site will include low profile cooling towers, intake and discharge structures, containment buildings, auxiliary buildings, turbine buildings, diesel generators, warehouses, related site work

and infrastructure, including roads, transmission lines and a transmission switchyard. The Company will submit a Site Certification Application ("SCA") to DEP for the entire site as well as all associated facilities for the units, including transmission facilities. The Company currently plans to place the units in commercial operation in June 2016 and June 2017, respectively.

V. NONBINDING COST ESTIMATE FOR PROPOSED NUCLEAR POWER PLANTS.

26. PEF has been in negotiations with Westinghouse and its construction partner, Shaw Stone & Webster (collectively the "Consortium"), for more than a year on pricing and the terms and conditions of an Engineering, Procurement, and Construction ("EPC") contract. Although the Consortium has provided PEF with site specific pricing for the project, EPC contract negotiations continue. PEF expects that a portion of the power plant costs will be based on firm prices. The total, non-binding cost estimate, however, will still be subject to change over the course of time it will take to achieve commercial operation of the two nuclear reactors even with these firm prices as part of the cost estimate.

27. The current, non-binding overnight project cost estimate for Levy Units 1 and 2 is approximately \$9,303M (2007 dollars), excluding transmission facilities. With escalation and an estimated \$3,245M for Allowance for Funds Used During Construction ("AFUDC"), for a total, non-binding in-service cost estimate for Levy Units 1 and 2 is \$14,090M. This in-service cost estimate includes all land acquisition, site development, major equipment, construction including labor and materials, training and staffing, start-up and testing, and initial fuel core load costs, but excludes transmission facilities.

28. The Company has estimates of the operating and maintenance ("O&M") costs too. The incremental annual fixed O&M expense for Levy Unit 1 is \$51.79/kW-yr (Summer

Basis, 2007 dollars) and the estimated variable O&M is \$1.82/MWh (Summer Basis, 2007 dollars). The largest fixed costs are wages and wage-related overheads for the permanent plant staff, as well as expenses for unplanned equipment maintenance. Variable O&M costs will vary as a function of plant generation and will include consumables, chemicals, lubricants, water, and major maintenance costs such as planned equipment inspections and equipment overhauls.

29. Based on negotiations to date with the Consortium, the Company expects to achieve efficiencies and cost reductions on the second unit if it is constructed within twelve (12) to eighteen (18) months of the first nuclear unit. The projected price reduction results from expected efficiencies for concurrent manufacturing of key components and continuous mobilization for on-site construction of both units. Additional efficiencies in engineering and construction are expected from experience gained from the construction of one unit to the next. These economies of scale and engineering and construction efficiencies significantly lower the overall cost for Levy Units 1 and 2 with the resulting cost savings benefiting PEF and its customers. The expected cost of the second nuclear unit, Levy Unit 2, is \$3,376/kW (Summer Basis, 2007 dollars), which is significantly less than the cost of Levy Unit 1 on a per-kW (summer) cost basis at \$5,144/kW (2007 dollars). Similarly, the estimated fixed O&M cost for Levy Unit 2, \$36.25/kW-yr (2007 dollars), is lower than the fixed O&M cost for Levy Unit 1 by \$15.54/kW-yr (2007 dollars). These cost savings from the construction of Levy Unit 2 within a year to eighteen months of the commercial operation of Levy Unit 1 are substantial and represent a significant economic benefit to PEF's customers.

30. Additional transmission system upgrades will be necessary to add to and accommodate the large base load units on PEF's system and to reliably deliver power from the site to PEF's transmission and distribution systems. At this time, the Company estimates that

these upgrades will include constructing new 500kV and/or 230kV lines and new substations. Preliminary estimates have identified costs for these transmission facilities to be in the range of approximately \$2,450M excluding AFUDC. As the transmission design and licensing efforts progress, more detailed cost estimates will be available. Current schedule estimates call for the transmission work to be completed approximately one year prior to commercial operation of the nuclear units.

31. It should be emphasized, however, that these costs are estimates based on the best information available to the Company today. This project is unique, involving not only the construction of the first nuclear plants in the country on a Greenfield site in more than thirty (30) years, but also the siting and construction of one of the single, largest transmission infrastructure projects in the history of Florida. The fact that the project will span more than a decade from initial analysis to final construction and commercial operation further increases the difficulty in estimating the costs. This is compounded by the number of significant risks and challenges to completing this project – most of which will be beyond the Company’s reasonable control – and which could increase project costs. Such risks and challenges include, among others: 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 miles of new 500 kV and/or 230 kV transmission lines to reliably deliver the power from the energy complex to our customers; significant inflation or increase in the cost of capital; the ability to obtain and maintain financing at reasonable terms; lack of public, investor, or policy maker support; and potential regulatory disallowances of costs incurred, to name only a few.

VI. ANNUALIZED 12-MONTH BASE REVENUE REQUIREMENTS BASED ON NONBINDING COST ESTIMATE.

32. The estimated annualized base revenue requirement for the first twelve (12) months of operation of the proposed Levy Unit 1 nuclear power plant is \$1.1 billion. The estimated annualized base revenue requirement for the first twelve (12) months of operation of the proposed Levy Unit 2 nuclear power plant is \$804 million. The Company's annualized base revenue requirement projections are based on the Company's non-binding, preliminary cost estimate for Levy Units 1 and 2, including the non-binding cost estimate for associated transmission facilities. With the addition of both Levy Units 1 and 2, however, there will be fuel savings, projected to start at \$930 million in 2018, the first year of full operation of both nuclear units, based on a comparison of the reference resource plan with Levy Units 1 and 2 to an all natural gas reference case. Fuel savings from the operation of both nuclear generation units are projected for the expected sixty-year operational lives of both units.

VII. OVERVIEW OF PEF'S NEED FOR LEVY UNITS 1 AND 2.

33. PEF believes that Levy Units 1 and 2 will enable the Company to meet the needs of its customers during the sixty (60) years of expected service each nuclear unit will provide. The two nuclear generation units provide a superior source of efficient, low-fuel cost, base load power to the Company's customers. They will, as a result, contribute to the long-term stability and reliability of the Florida electric grid.

34. The two nuclear units will meet the Florida legislative and executive goal of (1) increasing fuel diversity and fuel supply security for electrical capacity and energy production for PEF and the State of Florida, and (2) reducing PEF's and the State's dependence on volatile fossil fuel supplies, typically from foreign sources, that are further subject to supply

interruptions. Levy Units 1 and 2 further advance the goals of executive orders by the Florida Governor to counter perceived effects of global warming by reducing CO2 and other GHG emissions because they emit no GHG gases in operation. Levy Units 1 and 2 are environmentally beneficial generation resources because they have none of the emission concerns of other, fossil fuel or renewable generation sources, such as NOx, SO2, and mercury emissions.

35. As a result of these and other statutory and regulatory factors, explained more fully below and in the testimony of PEF's witnesses in support of this Petition, Levy Units 1 and 2 reasonably are the most cost-effective generation alternatives to meet PEF's reliability needs in the 2016 to 2019 timeframe and beyond. Levy Units 1 and 2 fully comply with the paradigm set forth by the Florida Legislature for the evaluation of need determinations for nuclear power plants to encourage future nuclear development in the State.

36. PEF needs additional generating capacity by the summer of 2016 to maintain system reliability and integrity, and to meet its commitment to maintain a twenty (20) percent reserve margin (See Appendix F to PEF's Need Study, Order approving Reserve Margin Stipulation). Levy Units 1 and 2 will enable PEF to meet this reliability need, and the reliability needs thereafter, and they will allow PEF to continue to provide and increase adequate electrical generation from nuclear fuel for customers at a reasonable fuel cost.

37. In addition to the Company's reliability needs, the addition of Levy Units 1 and 2 represent a long-term economic advantage that will benefit PEF's customers for generations. Economies of scale and engineering and construction efficiencies resulting from the construction of Levy Unit 2 within twelve to eighteen months of Levy Unit 1 yields substantial cost savings for the second unit. As a result, PEF customers can receive the benefits of clean, low fuel cost

nuclear generation from two units, with the most efficient and cost-effective level of generation selected by Westinghouse in the AP1000 design, at a reduced cost.

38. Nuclear generation additions to PEF's generation fleet result in the best fuel value trade-offs because their fuel source is more reliable and stable in price than alternative fossil fuel generation resources. They also reduce the Company's risk of exposure to additional costs from current and potentially future legislative and executive enactments and regulatory requirements concerning environmental emissions, including GHG emissions. The fuel savings and environmental benefits from both nuclear units will thereafter be enjoyed by PEF customers for years to come, providing them with substantial economic benefits.

39. Further, and perhaps most significantly, in addition to the reliability need for and economic benefits from construction and operation of both nuclear units, Levy Units 1 and 2 will serve the Company's need to maintain appropriate fuel diversity in its generation fleet. PEF has only one other nuclear power generation unit on its system. That nuclear unit currently represents 14 percent of the electrical energy generation on PEF's system. With the addition of Levy Units 1 and 2, by 2018 nuclear generation will represent 38 percent of the total energy generation on PEF's system. Without these nuclear units, however, fossil fuel generation will account for 85 percent of the electrical energy generation on PEF's system by 2018. Levy Units 1 and 2 therefore are necessary to maintain and enhance PEF's current position as the most fuel diverse utility in Florida.

40. Levy Units 1 and 2 are further necessary to reduce PEF's reliance on fossil fuels and avoid a situation for PEF and its customers where, a decade from now and for years thereafter, at least 85 percent of the Company's electrical energy generation is obtained from fossil fuels. Fossil fuel supplies, certainly for oil and increasingly for natural gas, are generally

dependent on foreign suppliers. These foreign suppliers include potentially politically and economically unstable regions such as the Middle East. If Levy Units 1 and 2 are not built, PEF will not only have failed to reduce, PEF will have increased its dependence on fossil fuels from potentially unreliable foreign sources. Levy Units 1 and 2 will, accordingly, reduce PEF's and Florida's dependence on fuel oil and natural gas and enhance fuel supply reliability on PEF's generation system.

41. Levy Units 1 and 2 will further benefit PEF and its customers by adding diversity to PEF's generating assets in terms of technology and vintage of base load resources. PEF's current base load nuclear generation plant, Crystal River Unit 3 ("CR3"), has served and will continue to serve customers well for years to come, providing low fuel cost electrical power generation to PEF customers nearly year-round. But CR3 represents a nuclear generation technology that is now over thirty years old. PEF's other existing base load generation plants, its four Crystal River coal units, have also served customers well, but two of them are nearly 50 years old and the other base load generation units are two decades old. Levy Units 1 and 2 will provide customers with state-of-the-art, nuclear generation technology. Levy Units 1 and 2 will also add the first new base load generation to PEF's system in over twenty years, providing newer vintage generation to complement the older vintage base load units on PEF's system. These new nuclear generation units will therefore contribute to the long-term stability and reliability of the electrical power grid.

VIII. PEF'S RESOURCE PLANNING PROCESS.

42. PEF selected Levy Units 1 and 2 to meet its generation capacity needs in the period 2016 to 2019 and beyond after carefully evaluating planning options through the

Company's on-going Integrated Resource Planning process. PEF examined key planning forecasts and assumptions -- including forecasts of customer growth, energy consumption, and peak demand -- to determine the Company's future capacity needs. After identifying a need for capacity beginning in the 2016 timeframe, the Company analyzed a wide range of supply-side and demand-side alternatives to address this need. The Company's Resource Planning process is described more fully in its Need Study and its recent Ten-Year Site Plan (April 2007).

43. PEF developed and analyzed forecasts for long-range electric energy consumption, customer growth, peak demand, and system load shape based on assumptions developed by internal experts and respected, independent sources. In conducting its planning evaluations, PEF used several models and methodologies that incorporate forecasting techniques such as time-series analysis, econometric modeling, and direct contact with customers. All are accepted and widely used in the electric utility industry. The specific methodologies and forecasts are discussed in more detail in the Need Study and in the Company's Ten-Year Site Plan (Chapters 2 and 3). The summer peak demand forecasts and winter peak demand forecasts are also set forth in the Ten-Year Site Plan. (See Schedules 3.1.1, 3.1.2, 3.1.3 and 3.2.1, 3.2.2, 3.2.3, respectively).

44. By the summer of 2016, PEF's projected Reserve Margin will be 15.4 percent, without additional generation resources, signifying a need for additional resources to satisfy the Company's minimum 20 percent Reserve Margin commitment. Indeed, without the addition of Levy Unit 1 in the summer of 2016, PEF's projected Reserve Margin will fall even lower, to 13.4 percent, by 2017. If Levy Unit 1 is added in the summer of 2016 the Reserve Margin will be 25.3 percent. As such, PEF has a reliability need for Levy Unit 1 in the summer of 2016.

45. PEF's Reserve Margins for the summers of 2016 and 2017, and for several subsequent years, will exceed the minimum 20 percent Reserve Margin planning criterion if Levy Units 1 and 2 are brought into commercial operation by June 2016 and June 2017 as planned. Both units are still needed however, to meet the Company's reliability needs in the 2016 to 2019 time period and beyond. They are currently planned for commercial operation on these dates to meet the Company's reliability needs and to achieve the substantial economic, fuel diversity, fuel supply reliability, fuel independence, and environmental benefits they offer customers if they are brought on line as currently planned.

46. First, there is a reliability need for both nuclear units because the Company's Reserve Margin includes over 266 MW of projected capacity resources from new, untested, future renewable fuel facilities under recently executed purchase power agreements. These resources, as described more fully below and in the testimony of PEF witness Mr. Robert Niekum, include unique, innovative, renewable generation facilities that have not been built yet and that rely on unproven technologies or fuel sources (such as waste-wood biomass and biomass grass crops). If these renewable generation facilities are not built, their construction is delayed, or they fail to achieve reliable commercial operation at all or at the expected capacity, PEF's Reserve Margins will be even lower than currently projected and the Company's need for additional resources will increase in this time frame.

47. Second, there is a reliability need for both nuclear units even if these renewable resource facilities achieve reliable commercial operation when planned. If Levy Unit 1 is added in the summer of 2016, but Levy Unit 2 is not added the next summer as planned, PEF's Reserve Margin falls below the 20 percent Reserve Margin criterion (at 19.1 percent) in the summer of 2019, and then falls to 17.2 percent in the summer of 2020. Faced with a need for additional

resources within this short period of time after Levy Unit 1 achieves commercial operation, and given the length of time necessary to plan, site, obtain regulatory approval for, and design and build a nuclear unit, proceeding with both Levy Units 1 and 2 at this time for commercial operation in the summer of 2016 and 2017 certainly meets customer reliability needs in the time period 2016 to 2019 and beyond.

48. Third, the additional capacity from the second nuclear unit will provide greater assurance that the minimum 20 percent Reserve Margin criterion will be met in the event that peak loads are higher than currently anticipated. Levy Unit 1 will be operational over eight years from now and Levy Unit 2 will be operational over nine years from now under the current plan. Over such an extended period of time load growth may very well exceed projections. It has happened before, even over shorter time periods than eight or nine years. With Levy Unit 2 PEF will have the capacity it needs for customers under changing circumstances affecting load growth and reserves. Similarly, Levy Units 1 and 2 will allow PEF to maintain its current percentage of actual hard assets in reserves over a longer period of time. Maintaining sufficient reserves in “bricks and mortar” power plants is necessary to the reliability of PEF’s system by reducing the Company’s dependence on direct load control programs in reserves.

49. Fourth, the addition of Levy Unit 2 provides PEF the flexibility to reduce or replace the use of potentially less economic generation resources. Nuclear fuel historically is more stable in price and cheaper than fossil fuels. This relationship between nuclear and fossil fuels is expected to continue. Over the eight to nine year period required to bring the nuclear units on line, PEF and its customers face growing uncertainty surrounding the cost of using carbon-based fossil fuels to generate electricity. Having an additional nuclear unit in commercial operation in 2017 and beyond provides PEF with greater flexibility in meeting customer

demands for low cost electrical power should the cost of using fossil fuel to generate electricity change dramatically over this period of time.

50. For all of these reasons, PEF maintains there is a reliability need for both Levy Unit 1 and Unit 2 in the summer of 2016 and 2017, respectively, when they are planned for commercial operation.

IX. MAJOR GENERATING ALTERNATIVES EXAMINED AND EVALUATED.

51. In selecting Levy Units 1 and 2 as the supply-side alternatives to meet the Company's capacity need in the 2016 to 2019 timeframe, PEF examined, evaluated, and ultimately rejected other conventional, advanced, and renewable generation resources as potential capacity addition alternatives in this time period. As described more fully in PEF's Need Study, the Company assessed numerous renewable technologies (wind energy conversion, solar photovoltaic cells, wood chip, tire burning, and municipal solid waste); advanced technologies (atmospheric fluidized coal bed combustion ("AFBC"), coal gasification/combined cycle, advanced light water nuclear, and fuel cells); and conventional technologies (pulverized coal, combustion turbine, and combined cycle). As a result of PEF's initial assessment of these generation alternatives, the Company narrowed its options to viable generation alternatives, namely, natural gas-fired combined cycle, pulverized coal and AFBC, coal gasification, and advanced light water nuclear.

52. The AFBC or pulverized coal, coal gasification, and advanced light water nuclear generation options were initially evaluated against an all natural gas generation reference case. Natural gas generation, based on relative capital costs, experience with the technology, and environmental factors, was considered the default supply-side generation alternative to the other

viable generation resources. Nuclear generation technology fared better than AFBC, pulverized coal and coal gasification against the all natural gas reference case in preliminary evaluations. Further, nuclear generation appeared to be the most viable generation alternative to natural gas generation because (1) significant, potential environmental costs were associated with AFBC, pulverized coal and coal gasification resulting from GHG and possible carbon capture or carbon abatement costs, and (2) there were recent regulatory and utility decisions to forego AFBC, pulverized coal and coal gasification generation options in Florida. So, advanced light water nuclear generation technology was selected for further economic evaluation.

53. The Company conducted a more detailed economic screening of the identified advanced light water nuclear generation alternative using the Strategist optimization program. The Strategist computer model was used to assess the Company's seasonal Reserve Margins and add selected generation resources to meet the prescribed minimum Reserve Margin requirements. The optimal generation expansion plan from the Strategist modeling appears in Table 7 of the Need Study. In this optimal plan, Levy Units 1 and 2 are shown in service in summer 2016 and summer 2017, respectively, preceded by the Bartow re-powering in 2009, the Crystal River Unit 3 uprate in 2009 and 2011, a new combined cycle unit in 2013, and purchased power contracts (primarily for peaking power and renewable generation resources). This plan is a slight variation of the base expansion plan published in the Company's 2007 Ten-Year Site Plan filed with the PSC on April 1, 2007. The current base expansion plan reflects additional information and analysis since that Ten-Year Site Plan was prepared.

X. ANALYSIS OF VIABLE NON-GENERATING ALTERNATIVES AND RENEWABLE GENERATION.

54. To meet its Reserve Margin planning criterion, and to comply with the directives of FEECA, the Company relies upon dispatchable demand-side resources to reduce the “firm” load that must be protected by planning reserves. Additionally, in further compliance with FEECA, PEF has developed and implemented programs in its DSM Plan that are designed to enable customers to conserve energy. PEF’s DSM Plan over the years has allowed the Company to meet or exceed the Commission’s DSM goals for PEF every year those goals were in place.

55. The Company continues to aggressively pursue the research and development of additional or modified DSM programs to reduce and control the growth rate of energy consumption, increase energy conservation, and increase the efficiency of the electric system, consistent with regulatory rules and guidelines. For example, in connection with the most recent expansion of PEF’s DSM programs, PEF analyzed over 200 possible measures before filing its revised Plan with the Commission. That revised Plan includes 39 additional DSM measures and 2 new residential programs in addition to PEF’s existing DSM Plan. On January 5, 2007, the Commission issued a PAA Order approving PEF’s expanded DSM Plan, which will serve to increase the demand and energy savings available through PEF’s DSM Plan (Docket 060647: Consummating Order PSC-07-0017-CO-EG making Order PSC-06-1018-TRF-EG effective and final).

56. PEF’s current DSM Plan is comprised of 16 individual programs -- seven residential programs, seven commercial and industrial programs, a qualifying facilities (cogeneration and small power production) program, and a research and development program -- with over 100 measures. Under PEF’s expanded DSM Plan, PEF expects to produce 527 Winter MW (“WMW”) of peak demand reduction and 418 WMW of reduction from energy efficiency

through 2014, for a total of 945 MW load reduction. When this expected MW reduction from PEF's expanded DSM programs is added to the existing programs, the total MW load reduction is over 2,400 MW. PEF's current approved DSM Plan is included in Appendix D to the Need Study.

57. Even under its revised DSM Plan, however, PEF still needs additional supply-side reserves over the next ten years, including Levy Units 1 and 2 in the 2016 to 2019 time frame and beyond. The goal of utility DSM programs and incentives, of course, is to encourage customers to choose more energy saving options or equipment than they would without a utility program. A number of these programs, however, have reached or are reaching saturation levels with customers. For example, while PEF's direct load management program has been very successful it is close to reaching the maximum amount that can be used to meet PEF's reserves, which is no more than 60 percent in the winter and no more than 50 percent in the summer.

58. PEF will continue to evaluate potential, emerging DSM technologies, but PEF's detailed analysis represented by its current, expanded DSM program has captured all cost-effective demand-side potential available. With expected customer and demand growth, PEF cannot provide DSM options in quantities needed to offset the need for additional generation. PEF will still need additional generation resources to serve customer needs.

59. PEF has always been and continues to be one of the most successful Florida utilities in securing cogeneration and renewable energy contracts. In 2006, PEF entered into additional renewable capacity and energy contracts with the Florida Biomass Energy Group (about 117 MW) for energy from biomass energy crops – a carbon neutral facility that will be the largest renewable energy plant of its kind in the world. In 2007, PEF also signed two long-term contracts to purchase electricity generated by what will be the largest waste-wood biomass plant

in the nation. Biomass Gas & Electric plans to build a power plant in north Florida that will use gasification from waste wood products to create 150 MW (75 MW under each long-term contract), beginning in 2011.

60. Each of these renewable energy generation projects appears to be feasible but the facilities have not yet been built and they accordingly have not achieved commercial operation at the projected capacity levels. For example, in 2007, G2 Energy canceled its contract with PEF whereby PEF had agreed to purchase energy from G2 Energy from burning landfill gas because G2 Energy was unable to secure a municipal solid waste gas supply contract. Similarly, any number of factors -- including land availability and cost, financing availability and cost, public acceptance of the projects, the feasibility of the technology in actual construction or operation to produce energy, and weather or other conditions affecting biomass crop production levels -- can cause delays in, or the derailment of, the construction and commercial operation of these renewable energy generation facilities. Yet, PEF has entered into long-term purchase power agreements, providing the long-term commitment to pay for the capacity and energy from these facilities, to encourage the development of such renewable energy resources.

61. Recently, PEF also issued a request for renewables ("RFR") to expand its renewable capacity and energy portfolio even further. To qualify, a renewable fuel project must be located in Florida, produce at least 1 MW (although lower amounts may be allowed), sell the output at a cost equal to or below the cost to build new power plants, and be capable of predictable and reliable operation. In the same RFR, the Company is looking to expand its solar energy programs and is seeking additional prices for photovoltaics. The intent of the RFR is to provide flexibility in negotiations while complying with the regulatory requirement that renewable energy resources must be cost-effective to customers.

62. PEF is committed to continuing to develop viable renewable fuel resources as part of its balanced solution to meeting customer growth and demand in the future and to reduce the Company's reliance on fossil fuels. Florida's geography and weather, however, significantly limit the types of renewable energy generation resources that are viable in the state. Traditional renewable energy resources like hydro or geothermal power, for example, are not available to any significant degree in Florida. Wind and solar resources also have limited application in PEF's service area. Florida has only marginal wind resources, and they are located along the coastline where local opposition can be expected to such facilities, and the wind is not constant enough at levels necessary to sustain the reliable and cost-effective production of power. Based on PEF's numerous discussions with solar energy developers, the current solar photovoltaic technology is also not cost effective to produce significant, sustained power levels, even assuming the vast land necessary for such large scale photovoltaic resources was available and available at a cost-effective price. Other potential renewable energy sources, such as off-shore wind and ocean currents, are still in the development stages.

63. Renewable energy sources are part of the Company's balanced solution to meet the economic and energy needs of its customers in the future. PEF, accordingly, remains committed to renewable resources, however, there simply are insufficient renewable energy resources available to PEF over the next decade to meet customer capacity and energy needs without the addition of other generation resources to PEF's system. Levy Units 1 and 2 are still necessary in the 2016 to 2019 time frame to meet the Company's capacity and energy needs for its customers.

XI. LEVY UNITS 1 AND 2 ARE THE MOST COST-EFFECTIVE SOURCES OF POWER TAKING INTO ACCOUNT FUEL DIVERSITY, FUEL SUPPLY RELIABILITY, AND THE OTHER BENEFITS OF NUCLEAR GENERATION UNDER SECTION 403.519(4)(B)3.

64. Under Section 403.519(4)(b)3, Florida Statutes, the Commission, and thus the utility, must determine whether the nuclear power plant will “provide the most cost-effective source of power, taking into account the need to improve the balance of fuel diversity, reduce Florida’s dependence on fuel oil and natural gas, reduce air emission compliance costs, and contribute to the long-term stability and reliability of the electric grid.” §403.519(4)(b)3, Fla. Stat. PEF has determined that Levy Units 1 and 2 are the most cost-effective source of power to meet the Company’s need in 2016 to 2019 and beyond when fuel diversity and fuel supply reliability, the reduced reliance on foreign fossil fuels, existing and future emission compliance costs, and long-term electric grid reliability factors are considered as the Florida Legislature directed.

65. PEF did evaluate Levy Units 1 and 2 against other generation supply options, narrowed down to natural gas generation, on a cumulative present value revenue requirements (“CPVRR”) basis, under traditional production cost analysis over an expanded sixty (60)-year computer model study period. This 60-year optimization model study period includes ten (10) years prior to commercial operation of Levy Units 1 and 2, when work to site, permit, design and construct the units will be accomplished, and fifty (50) years of commercial operation, which accounts for the forty (40)-year expected useful life based on the initial license and half of the expected twenty (20)-year license extension for the two nuclear units. Using the Company’s current, non-binding cost estimate, and the additional legislative factors that must be considered when evaluating the cost-effectiveness of nuclear generation to the extent they could be quantified, including the advent of GHG emission costs, the generation resource plan including

Levy Units 1 and 2 was more cost-effective on a CPVRR basis than an all natural gas generation reference plan in the majority of the CPVRR scenarios, even without accounting for the additional ten (10) years of commercial operation of the two nuclear units in the model. The Company accordingly determined that Levy Units 1 and 2 are the most cost-effective source of power to meet the Company's future energy needs under Section 403.519(4)(b)3.

66. Levy Units 1 and 2 offer a number of benefits that PEF cannot obtain with other alternatives, including advanced nuclear generation technology, high efficiency, and environmental benefits using the lowest cost fuel source available to the Company. The advanced technology of the Westinghouse AP1000 nuclear reactor design that is being evaluated uses passive safety system designs and engineering simplicity that simply was not available in prior nuclear power plant designs. The AP1000 has significantly less cable, pipe, valves, pumps, and other equipment than the generation of reactors in operation today. This means relatively lower construction and operation costs for the Westinghouse AP1000 nuclear reactor than the construction and operation costs of a nuclear power plant using the designs available in plants currently operating. The more efficient design for the Westinghouse AP1000 nuclear reactor also means greater reliability is expected compared to the nuclear plants that are operating today.

67. In addition, as noted above, PEF has an opportunity to take advantage of favorable economies of scale and other efficiencies from building successive nuclear units at the same site that cannot be obtained if the second unit is delayed or is not built. The current estimated cost of Levy Unit 2 is projected to be substantially less on a dollar per-kW basis than the cost of Levy Unit 1 if the second unit is constructed within twelve (12) to eighteen (18) months of the first unit. These projected cost savings are based on anticipated engineering and construction efficiencies, for example, concurrent manufacturing of large key components and

continuous mobilization for on-site construction of both units. If long lead time equipment for both units can be procured concurrently these economies of scale can begin to be achieved, thus, significantly lowering the cost of the second unit.

68. Nuclear power also is a clean source of electric power generation. Electric power generation from nuclear fuel produces no SO₂, NO_x, GHG, mercury, or other emissions. In light of the current environmental requirements, including among others the Environmental Protection Agency (“EPA”) and DEP Clean Air Interstate Rule (“CAIR”), for example, affecting fossil fuel generation, and potential new legislative and regulatory limitations on GHG emissions, nuclear energy appears to be a more economically viable future generation alternative to fossil fuel (oil, gas, or coal) electric power generation. Indeed, when the financial impacts of potential future carbon abatement legislation and regulation currently being considered are accounted for in the computer optimization model, Levy Units 1 and 2 are projected to be a more cost-effective alternative to natural gas-fired generation on a CPVRR basis in the majority of the potential CPVRR scenarios evaluated, and in some scenarios significantly more so.

69. Nuclear power further uses the lowest cost fuel source (uranium used in processed nuclear fuel) currently available to the Company. Processed uranium fuel is an abundant and stable fuel source relative to other fuels. As a result, adding more nuclear generation to PEF’s generation system is expected to result in more stable energy prices relative to other (fossil fuel) generation resources. Indeed, if future natural gas prices move from PEF’s mid-level fuel forecast to PEF’s high fuel forecast, Levy Units 1 and 2 are projected to be significantly more cost-effective than natural gas-fired generation, based on the CPVRR analyses in the scenarios in the computer optimization model.

70. Additional nuclear power generation reduces PEF's dependence on fossil fuels as a source of electrical power generation. Fossil fuels are not only higher cost fuels than nuclear fuel on a dollar per unit of energy production basis, they are also more volatile in price, in recent years, significantly more volatile. Also, a growing percentage of the fossil fuels supplied for energy generation, particularly oil and natural gas, will come from foreign fuel supply sources that may prove to be unreliable or add to the volatility in price of fossil fuels. Increasing the percentage of energy generated from nuclear fuel in the future reduces the Company's exposure to the volatility and supply instability associated with fossil fuels. Without Levy Units 1 and 2, however, natural gas and oil will comprise 61 percent, and all fossil fuel sources will comprise 85 percent of PEF's energy mix on its system by 2018. Nuclear fuel will account for only 12 percent of the energy generated. With Levy Units 1 and 2, nuclear generation will contribute 38 percent of the total system energy needs by 2018, further reducing PEF's dependence on fossil fuel generation sources, including natural gas and oil. This additional nuclear generation, therefore, will improve PEF's fuel diversity, fuel supply security, and fuel independence.

XII. ADVERSE CONSEQUENCES OF DELAY.

71. If Levy Units 1 and 2 are delayed, PEF will not be able to satisfy its minimum 20 percent Reserve Margin planning criterion in the period 2016 to 2019 with nuclear power generation. Indeed, PEF must move forward now with a determination of need and other regulatory, engineering and pre-construction activities to maintain the current schedule for commercial operation of Levy Units 1 and 2 in the 2016 and 2017 time frame. Any delay will require PEF to move to other generation alternatives to meet its Reserve Margin planning criterion in this time period. In all likelihood that will mean the construction of additional

natural gas-fired combined cycle generation units, given the time required to site and construct other generation alternatives, which will further increase PEF's dependence on volatile fossil fuel sources for energy generation. The resulting generation mix, with its heavy reliance on fossil fuels, will expose PEF's customers to higher and more volatile fuel costs, potential supply interruptions, and reduced fuel diversity on PEF's system and in the State as a whole.

72. Delays will further mean increased costs for the construction of nuclear power generation. Engineering, materials, labor, and construction costs will likely increase over time, therefore, delays in the approval of the need determination for Levy Units 1 and 2 will simply mean it will cost customers more for these units to become commercially operational at a later date. Additionally, delays may mean the Levy Units will not meet the eligibility requirements and deadlines including being in commercial operation by January 2021 and, therefore, PEF will not be eligible for potential production tax credits and other economic benefits under EPACT that are available to the first wave of new nuclear generation power plants.

73. Finally, delay of commercial operation of Levy Units 1 and 2 may postpone the development of nuclear generation by PEF by up to a decade if not more beyond the current planned operation of Levy Units 1 and 2 in 2016 and 2017. There is considerable interest in future nuclear generation in the United States and around the world but there are limited resources available to supply the material and equipment necessary to develop all planned future nuclear generation units. A utility must reserve and preserve its place in the queue for the material and equipment necessary to place nuclear generation units in commercial operation in a timely manner. If PEF's need determination for Levy Units 1 and 2 is denied or delayed, PEF's current place in the queue for manufacturing of components and for construction may be taken by some other utility or developer and PEF will, in effect, have to go to the back of the line if it

wants to subsequently pursue the development of nuclear generation units. As a result, a denial or delay in PEF's determination of need may postpone new nuclear generation units for PEF up to or for more than a decade after 2016.

XIII. OWNERSHIP OF LEVY UNITS 1 AND 2.

74. The Company needs the capacity and energy of both Levy Units 1 and 2 to meet its reliability needs in the time period 2016 to 2019 and beyond, and to provide PEF's customers with the additional benefits from nuclear generation, including enhanced fuel diversity, improved, new nuclear base load technology replacing older generation technology, and environmental benefits. The Company, however, has had discussions with other utilities, including municipal electric utilities, electric cooperatives, and power agencies in the State regarding their interest in and the potential for joint ownership of one or both of the nuclear units.

75. Potential joint ownership could have several benefits to PEF and its customers, including spreading the capital costs and risks of construction and operation, smoothing the "lumpiness" of the generation addition to better match PEF's reserve margin needs, and obtaining the active support of numerous municipalities and electric cooperatives for the project and the siting and construction of associated transmission facilities. PEF's discussions have been encouraging and are ongoing. Any joint ownership arrangement, however, ultimately will depend upon the parties reaching mutual agreement upon key terms and conditions.

76. Despite the uncertainty surrounding joint ownership of one or both nuclear units, because substantial time is needed to site, obtain regulatory approval, design, order long lead equipment and material, and construct nuclear power plants, the Company must proceed with the

need determination for both nuclear units at this time. The Company will continue to evaluate the potential for joint ownership of some level of the capacity and energy of Levy Unit 1, Levy Unit 2, or both nuclear generation units, if the terms of any such joint ownership are in the best interest of the Company and its customers.

XIV. DISPUTED ISSUES OF MATERIAL FACT.

77. PEF is not aware at this time that there will be any disputed issues of material fact in this proceeding. Through the testimony and exhibits of its witnesses, PEF expects to demonstrate that the proposed Levy Units 1 and 2 satisfy the statutory criteria set forth in Section 403.519, Fla. Stat., as amended.

XV. CONCLUSION.

78. PEF seeks an affirmative determination of need for Levy Units 1 and 2 to meet the Company's need for electric system reliability and integrity and to enable the Company to continue to provide adequate electricity to its customers at a reasonable cost. PEF determined to seek this approval only after conducting a rigorous internal review of supply-side and demand-side options, including renewable generation alternatives. The Company has attempted to avoid or defer constructing the units by considering and pursuing demand-side options and renewable generation options reasonably available to it, but the Company has nonetheless concluded that it cannot avoid or defer its need to built the units to meet its current requirements for generation resources in the time period 2016 to 2019 and beyond.

79. Levy Units 1 and 2 will be state-of-the-art, highly efficient, environmentally clean nuclear power generation units. They will be built on a site planned and well-suited for the

expansion of PEF's nuclear generation fleet. Levy Units 1 and 2 are the most cost-effective generation alternatives available to PEF to meet PEF's need for generation in the years 2016 to 2019 and beyond taking into account the legislative requirements of fuel diversity, reliable and economic fuel sources, fuel independence, and current and potential environmental costs.

80. Indeed, consistent with the Florida Legislature's directive in Section 403.519(4)(b)3, Florida Statutes, Levy Units 1 and 2 will move the Company and the State to a generation supply paradigm that is more fuel diverse and more fuel independent, and thus less reliant on fossil fuels, particularly those from foreign fuel suppliers. With the addition of Levy Units 1 and 2, by 2018 nuclear energy will represent 38 percent of the total energy generated on PEF's generation system. Without these nuclear generation units, however, fossil fuels will account for 85 percent of the electrical energy generation on PEF's system in 2018, and PEF will need as much as another decade to add nuclear generation to PEF's system, thus leaving PEF and its customers dependent on fossil fuels for at least 85 percent of the electrical power generated for an even longer period of time. This generation supply paradigm, where PEF is for the next two decades predominantly relying on fossil fuels to generate electrical energy for its customers, in PEF's view, must be avoided for the benefit of PEF, its customers, and the State.

81. The opportunity to move away from a predominant, fossil-fuel, generation supply paradigm is now, and granting a determination of need for Levy Units 1 and 2, as PEF requests, will provide PEF and Florida the opportunity to move towards a generation supply portfolio that is essential for the future energy needs and economic and environmental well-being of the State. For all of these reasons, and for the reasons more fully developed in PEF's Need Study and supporting appendices and tables, and the Company's pre-filed direct testimony and exhibits,

PEF requests that the Commission grant a favorable determination of need for Levy Units 1 and 2.

82. Pursuant to Section 403.519(4), Fla. Stats., and Rule 25-22.080(2), F.A.C., the Company respectfully request that, within seven (7) days, the Commission set a date no later than May, 2008, for commencement of a hearing on this Petition; that the Commission give notice of the commencement of the proceeding as required by Rule 25-22.080(3), F.A.C.; and that the Commission determine that there is a need for the proposed electrical power plants described in this Petition, and file its Order making such determination with the DEP pursuant to Section 403.507(4)(a), Fla. Stats.

Respectfully submitted this 11th day of March, 2008.

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