



SCANNED

R. Wade Litchfield
Vice President and
Associate General Counsel - Regulatory
Florida Authorized House Counsel
Admitted: NY, LA
Florida Power & Light Company
700 Universe Boulevard
Juno Beach, FL 33408-0420
(561) 691-7101
(561) 691-7135 (Facsimile)

October 16, 2007

HAND DELIVERED

Ms. Ann Cole, Director
Division of Commission Clerk
And Administrative Services
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, FL 32399-0850

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07 OCT 16 PM 12:01
COMMISSION
CLERK

Re: Docket No. 07 0650 -EI
*In re: Florida Power & Light Company's Petition to Determine Need for
Turkey Point Nuclear Units 6 and 7 Electrical Power Plant*

Dear Ms. Cole:

Enclosed for filing on behalf of Florida Power & Light Company ("FPL") are the original and fifteen (15) copies of (i) FPL's Petition to Determine Need for Turkey Point Nuclear Units 6 and 7 Electrical Power Plant; (ii) Need Study for Electrical Power; (iii) Appendices A-K to the Need Study and (iv) testimony and exhibits for the following: (1) C. Dennis Brandt; (2) Nils J. Diaz; (3) Leonardo E. Green; (4) Kennard F. Kosky; (5) Henrietta G. McBee; (6) Armando J. Olivera; (7) Kim Ousdahl; (8) John J. Reed; (9) Hector J. Sanchez; (10) Steven D. Scroggs; (11) Rene Silva; (12) Steven R. Sim; (13) J.A. Stall; (14) Claude A. Villard; and (15) Gerard J. Yupp.

Also included in this submittal is a computer diskette containing FPL's Petition in Word format. Please contact me if you or your Staff has any questions regarding this filing.

Sincerely,

R. Wade Litchfield

A. Olivera 09452-07
K. Ousdahl-09453-07
J. Reed - 09454-07
H. Sanchez 09461-07
R. Silva-09462-07
S. Sim - 09463-07
J. Stall - 09464-07
A. Villard-09465-07
G. Yupp-09466-07
S. Scroggs-09467-07

(P) 09443-07
(PP) 09444-07
(PPP) 09445-07
D. Brandt-09446-07
N. Diaz - 09447-07
L. Green- 09448-07
K. Kosky- 09449-07
H. McBee-09450-07

- CMP
- COM 5
- CTR (original)
- ECR MSC
- GCL 2
- OPC 1
- RCA
- SCR
- SGA
- SEC
- OTH

RWL/jmd
Enclosures

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09443 OCT 16 07

FPSC-COMMISSION CLERK

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Florida Power & Light Company's)
Petition to Determine Need for Turkey)
Point Nuclear Units 6 and 7)
Electrical Power Plant)

070650
Docket No. _____
Dated: October 16, 2007

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PETITION

Pursuant to Sections 366.04 and 403.519, Florida Statutes, and Rules 25-22.080, 25-22.081, and 28-106.201, Florida Administrative Code, Florida Power & Light Company ("FPL" or the "Company") petitions this Commission for an affirmative determination of need for the construction of two additional nuclear-fueled generating units at FPL's existing Turkey Point electrical power plant site, together with the associated facilities, including transmission line and substation facilities, needed to integrate, interconnect and transmit energy from the Turkey Point site to FPL's transmission network for delivery to customers. The units and associated facilities may be referred to herein collectively as "Turkey Point 6 & 7" or the "Project."

I. Introduction and Overview

1. Florida, one of the most populous states in the nation, also continues to be one of the fastest growing. Over the past decade, FPL added an average of about 86,000 new customers each year and is projecting an annual average increase of approximately 85,000 new customers for the next fourteen years. In addition, with the increase in the number of electricity-consuming devices, electric usage per FPL customer has increased by approximately 30% over the past 20 years, even as end-use efficiency has significantly improved. Accordingly, FPL must continue to make significant investments in new infrastructure to keep pace with the increasing demand for

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adequate, reliable power associated with such growth. While FPL continues to advance reduced electricity usage and load management techniques through industry-leading conservation efforts and demand side management (“DSM”) programs, and actively cultivates and pursues the development of additional renewable generating capacity within the state, by themselves these efforts are not enough. FPL must also at times construct large, baseload capacity additions if the Company is to continue “keeping the lights on.” The proposed Project is intended to help meet FPL’s growing need for additional baseload capacity, which is the essential foundation of any utility’s supply portfolio, because these plants run year-round to provide the continuous supply of electricity that customers require. The Project also will enhance the reliability of FPL’s system by reducing reliance on fossil fuels and diversifying the resource mix.

2. Legislative action at both the federal and state levels has encouraged the development of new nuclear generation. At the federal level, the Energy Policy Act of 2005 (“EPAAct 2005”) recognized the need to assist potential nuclear plant owners by providing incentives and tools to help manage the risks of undertaking nuclear development activities. The Florida Legislature, in turn, took two important steps in 2006 that served as a catalyst for FPL’s decision to pursue the development of new nuclear generation and set the stage for the type of need determination that FPL is seeking here. First, the Legislature amended section 403.519 of the Florida Statutes to establish new criteria for determining the need for new nuclear capacity that are somewhat different than the need standards applicable to conventional steam units. Specifically, section 403.519(4)(b) requires the Commission to consider whether a proposed nuclear plant will provide needed baseload capacity, improve fuel diversity, reduce Florida’s

dependence on fuel oil and natural gas, reduce air emissions compliance costs, and contribute to the long-term stability and reliability of the electric grid. *See also* Rule 25-22.081, F.A.C. Cost effectiveness is to be assessed in the context of such objectives. §403.519(4)(b)(3), Fla. Stat. (2006).

3. At the same time that the Legislature modified the need criteria for new nuclear capacity in section 403.519, it directed the Commission to establish alternative mechanisms for the recovery of costs incurred in the siting, design, licensing, and construction of a nuclear power plant. §366.93, Fla. Stat. (2006); *see* Rule 25-6.0423, F.A.C. – Nuclear Power Plant Cost Recovery (the “NPPCR Rule,” implementing §366.93). Among other things, the NPPCR Rule establishes a process for the annual review of expenditures and the approval of cost recovery associated with the development of additional nuclear capacity. Together, these changes define a new paradigm for the development of nuclear generation. Rather than focusing on a one-time, all-or-nothing need determination, the NPPCR Rule recognizes that the long time horizon and high level of uncertainty surrounding the development of nuclear generation necessitates more of a stepwise approach, in which an initial, provisional decision to proceed is regularly re-evaluated based on accumulated experience and current information.

4. From a practical perspective, the earliest that the first of the Project’s units can be brought into service is 2018, with the second unit to follow in 2020. This timetable is primarily the result of the United States Nuclear Regulatory Commission’s (“NRC’s”) licensing process, the long lead time for procuring certain key components of a nuclear plant (“long-lead procurement items”), and the involved process of building and testing the many complex systems

comprising a nuclear plant. This extended development process necessarily means that some important project decisions and long-lead time cost commitments must be made early in the development process, in the face of relatively greater uncertainty. On the other hand, the modified need process allows the development to be managed in a stepwise, milestone-driven way, so that project decisions and costs can be periodically reviewed and adjusted as the Project unfolds and better, more certain information becomes available. Recognizing the evolving nature of factors affecting both the timing and magnitude of the ultimate benefits offered by nuclear generation relative to other technologies, the deployment of nuclear generation is uniquely suited to a process that learns and adapts along the development path in a way that is not generally possible or necessary with other shorter-term development projects.

5. While FPL is petitioning today for a determination of need, it is important to recognize that an affirmative need determination is not an irreversible commitment to a particular development path. To the contrary, an affirmative determination of need under the provisions of section 403.519 and Rule 25-22.081 for Turkey Point 6 & 7 is tantamount to purchasing an option to add new nuclear capacity to the FPL generating fleet starting in 2018, a crucial first step in the process to actually build and deliver that capacity. FPL will retain substantial flexibility to adjust the actual development and construction path in light of additional information likely to be learned in future years; and the Commission will retain the ability to review and evaluate future decisions contemporaneously, thus ensuring that the final result is prudent and in customers' long-term best interests.

6. FPL has evaluated numerous potential power plant designs for the Project and has determined that two – the General Electric Economic Simplified Boiling Water Reactor (“GE ESBWR”) and the Westinghouse AP1000 – are best positioned to balance technical, commercial and risk management considerations. The GE ESBWR is designed to have a nominal output of approximately 1,520 MW per unit, while the Westinghouse AP1000 is designed to have a nominal output of approximately 1,100 MW per unit. Thus, the two units comprising the Project will contribute between 2,200 and 3,040 MW of new generation to FPL’s system, depending upon which design FPL ultimately selects.

7. By 2020, FPL expects that it will need approximately 6,200 MW of additional new power supply, *after* taking into account approximately 1,900 MW of additional DSM, all currently committed supply projects, approximately 400 MW of capacity from the proposed uprates at FPL’s four existing nuclear units, and approximately 300 MW of renewable generation. Accordingly, even with the Project’s addition of 2,200 MW - 3,040 MW of new capacity, there will be a shortfall relative to need during this time period of between 3,120 MW and 3,960 MW which will have to be filled by other resources, including additional renewable generation.

8. FPL recognizes that there is uncertainty in the expected long-term demand growth rate in FPL’s system, such that it is possible that the need for new capacity in 2018-2020 will not be as great as FPL projects. FPL also recognizes that it is possible for new technologies and/or processes to emerge such that the amount of incremental DSM and/or renewable generation added to FPL’s system by 2018-2020 will be greater than FPL projects. However, it is highly

unlikely – and it would certainly be unwise to rely upon the presumption – that slower demand growth, or increases in DSM or renewable generation, would be sufficient to eliminate the entire 2,200 MW - 3,040 MW of demand to be met with the addition of the Project, let alone the approximately 3,120 MW to 3,960 MW capacity deficit in the 2018-2020 time frame that FPL projects will exist *even with* the addition of Turkey Point 6 & 7.

9. Failure to initiate development of the Project now, which would be the immediate consequence of the Commission not granting this Petition, would irrevocably foreclose the possibility of adding new nuclear capacity by 2018 and, in fact, would preclude the addition of such capacity before 2021. On the other hand, in the extremely unlikely event that the factors described above did combine to close the capacity gap completely, FPL could simply slow down the development process for the Project so that it would meet growth requirements somewhat farther into the future, if that was projected to be the most cost-effective choice. Thus, uncertainty around variables affecting overall capacity needs does not justify rejection of the option to add new nuclear capacity by 2018. The prudent course in the face of uncertainty is to take deliberate, step-wise actions that preserve options having significant underlying value.

10. There are only a few technologies suited to providing baseload capacity in Florida today and in the foreseeable future: nuclear; gas-fired combined cycle (“CC”); and advanced, clean coal technology such as supercritical pulverized coal or integrated gasification combined cycle (“IGCC”). In its recent Glades Power Park decision, the Commission denied FPL’s request to construct advanced, clean coal technology units,¹ which further limits that list and underscores the need for new nuclear generation to help preserve fuel and technology diversity

¹ Order No. PSC-07-0557-FOF-EI, Docket No. 070098-EI, dated July 2, 2007.

within FPL's supply portfolio. Of the two remaining baseload alternatives to nuclear – CC and IGCC – the former (CC) would move FPL away from, rather than toward, the goal of greater fuel diversity. The latter (IGCC) continues to present many unanswered questions about its commercial viability and operational reliability, would not in its present-day capability reduce carbon emissions, and, in any event, would result in a significantly higher present value revenue requirement than nuclear, based on current information. Most recently, Tampa Electric Company announced that it will not go forward with its proposed IGC unit at this time. Therefore, FPL is hesitant to pursue IGCC until a clear path to carbon capture and sequestration exists and cost and reliability issues are better known.²

11. FPL today depends upon natural gas for the majority of its energy need, and this dependence is expected to grow to approximately 75% by 2020 if FPL does not build Turkey Point 6 & 7 and instead adds an equivalent amount of CC generation. Although the Commission's Glades Power Park decision acknowledged that an increased reliance on natural gas would not, by itself, be imprudent or unreasonable, the Commission also recognized that there is value to fuel diversity and encouraged the continued pursuit of alternatives to CC that do not depend upon combusting coal. Turkey Point 6 & 7 represents a significant step in promoting fuel diversity within FPL's system.

12. Another extremely important advantage of new nuclear generation is that it will provide fuel-diverse baseload capacity without emitting carbon dioxide ("CO₂") or other greenhouse gases, which is not possible for either CC or IGCC plants at their current state of

² Carbon sequestration has been proposed as a way to reduce or eliminate greenhouse gas emissions from IGCC plants, but at this time it is little more than a concept and certainly not a mature technology upon which FPL or the state of Florida could rely for substantial greenhouse gas emission reductions.

development. In fact, Florida is moving toward positions on climate change that will virtually compel renewed development of nuclear generation. Governor Crist recently signed Executive Order No. 07-127, calling for significant reductions in greenhouse gases over the next 43 years. Nuclear energy is the only baseload generating technology available to Florida that operates with zero greenhouse gas emissions.³ The addition of Turkey Point 6 & 7 will reduce FPL's already low CO₂ emissions by about seven million tons per year (10%) as compared to adding CC units, and by about 17 million tons per year (21%) as compared to adding IGCC units without carbon capture and sequestration. The development of new nuclear generating capacity in Florida is essential to effectively address the concerns over climate change illustrated by Executive Order No. 07-127.

13. While the existence of a capacity need is a necessary condition for an overall need determination, it is not a sufficient condition by itself. Section 403.519(4)(b) sets forth several criteria that the Commission is to consider in evaluating a need petition for a nuclear plant: the extent to which such a plant provides needed baseload capacity, improves fuel diversity, reduces Florida's dependence on fuel oil and natural gas, reduces air emissions compliance costs, and contributes to the long-term stability and reliability of the electric grid. Turkey Point 6 & 7 is well suited to addressing these criteria:

- It will provide needed baseload capacity. Nuclear plants are designed to, and historically have, run at very high capacity factors (the capacity factor for the U.S. nuclear power industry averaged nearly 90% in 2006).

³ Nuclear generation, as well as wind and solar generation, are considered non-emitting technologies because they emit no greenhouse gases as they operate to produce electricity.

- It will help diversify the types of fuel that FPL uses to generate electricity and reduce reliance on fossil fuels. Compared to building a comparable amount of additional gas-fired generation, Turkey Point 6 & 7 will increase FPL's share of nuclear generation from about 16% to about 27% and will reduce FPL's share of gas generation from about 75% to about 65%.
- It will reduce Florida's reliance on fossil fuels unlike any other alternative, and will reduce the system's vulnerability to fuel supply disruptions in comparison to gas-fired generation.
- It will help reduce the variability of FPL's fuel costs, because nuclear fuel costs are relatively stable and represent a small portion of total generation costs compared to viable power supply alternatives.
- It will improve environmental conditions and reduce air emissions compliance costs. Unlike any other viable baseload alternative, the operation of Turkey Point 6 & 7 will produce zero emissions.
- It will improve the long-term stability and reliability of the electric grid, because the Project is a baseload resource located near FPL's load center and hence will have a positive impact on the recurring imbalance between generation and load in the Southeast Florida region.

No other available alternative could satisfy these criteria as effectively as Turkey Point 6 & 7.

14. Section 403.519 requires the Commission to evaluate cost-effectiveness relative to the above objectives. Clearly, if two generation technologies had similar levelized costs, but

one had significant baseload capacity value, for example, while the other offered only intermittent power supply, then the former would be preferred. Similarly, if two technologies had similar costs but one contributed to fuel diversity while the other did not, the former would be preferred. As a starting point, however, it is still important to evaluate the comparative economics of the three principal competing technologies – nuclear, CC, and IGCC – using the best available information. Given the relatively greater uncertainties associated with the economic comparison of technologies designed to meet capacity needs in the 2018-2020 time frame, FPL has taken a slightly different approach to its economic analysis in this need filing. Specifically, FPL has modeled a number of economic scenarios that incorporate a wide range of potential fossil fuel prices and possible environmental compliance costs, including a range of CO₂ emission compliance costs that are widely expected (though no such costs are currently imposed by statutes or regulations). As part of this analysis, FPL has identified a range of economic outcomes in which one fuel technology (nuclear or CC) is the cost-preferred solution relative to the other in reducing the capacity gap, and has expressed the results of its analysis as a breakeven capital cost for each individual case. If FPL's expected construction cost for nuclear is below the breakeven value, nuclear would be the economically preferred alternative.⁴ This analysis explicitly incorporates different potential scenarios for air emissions compliance costs. It does not, however, explicitly factor in any benefit for the nuclear alternative relative to two of the statutory criteria: improving fuel diversity, and increasing Florida's energy independence by reducing its dependence on imported fuel oil and natural gas. Accordingly, even in a scenario where FPL's economics show rough equality between new nuclear and new CC units, it is

⁴ The potential addition of CC would be less expensive than IGCC in every scenario. Therefore, FPL's analysis of breakeven costs focused on the CC alternative to new nuclear.

evident that application of the requirements of 403.519 would compel the selection of nuclear as the preferred alternative.⁵

15. FPL's analysis shows that for all of the scenarios evaluated (eight of nine), the addition of new nuclear capacity is economically superior versus the corresponding addition of new CC units required to provide the same power output, yielding large direct economic benefits to customers as well as effectively addressing the criteria of section 403.519(4)(b). In fact, in the only scenario in which nuclear is not clearly superior, the natural gas prices are significantly lower than they are today and there are zero future economic compliance costs for CO₂ emissions. Of all the scenarios evaluated, FPL believes these two to be the most unlikely. Moreover, even in these two unlikely scenarios, the results of the analysis show nuclear to be competitive or only slightly disadvantaged economically, while retaining the non-quantified advantages of fuel diversity, fuel supply reliability, and energy independence. Based on all the information available today, it is clearly desirable to take the steps and make the expenditures necessary to retain the option of new nuclear capacity coming on line in 2018.

16. As with uncertainties around the estimation of the future capacity gap, the existence of uncertainty regarding the precise economics of nuclear generation today does not render the potential benefits of Turkey Point 6 & 7 any less compelling. In fact, the economic analysis demonstrates that there is considerable margin before the majority of scenarios would favor CC over nuclear generation. Granting this Petition will enable FPL to move forward and preserve the ability to deliver the benefits of new nuclear capacity to its customers on the earliest practical deployment schedule – an extremely valuable option given the present understanding of

⁵ Nuclear and natural gas technologies can be considered essentially equal in providing needed baseload capacity and contributing to the long-term stability and reliability of the electric grid, the other two statutory criteria.

likely future economic scenarios – via the commitment of a comparatively modest level of resources. In contrast, denial of the Petition will foreclose that option.

17. As previously noted, because of the extended nature of the development cycle for a new nuclear plant and the process for annual reviews of the projected costs and system economics for such a plant pursuant to the NPPCR Rule, the Commission will have regular opportunities to review progress on Turkey Point 6 & 7 and to evaluate any new information that may come to light over time. The actual expenditures made will depend on the information available at the time; however, it is useful to consider a specific illustrative scenario. In the illustrative scenario provided in FPL witness Scroggs's testimony (Exhibit SDS-9), cumulative development spending up to the time that construction commences would be approximately \$523 million. This is composed of Exploratory phase expenditures (\$8 million), Licensing phase expenditures (\$155 million) and Preparation phase expenditures (\$360 million) over the period 2007 to 2011. Of course, the amounts incurred during these phases may actually be higher or lower based on the results of the stepwise decision process as the Project proceeds. Of this total, the expenditures required prior to the Commission's first review under the NPPCR Rule would be only \$40-\$80 million, depending on the level and timing of long-lead expenditures that must be made to stay on schedule. A portion of these expenditures may retain value even in the event of project deferral or indefinite suspension. Thus, even in the highly pessimistic case assuming total abandonment immediately prior to commencing construction, FPL's customers would be exposed to minimal economic impacts. FPL believes this scenario is unrealistically conservative. This would be a relatively modest price to preserve the option of bringing the

benefits of new nuclear capacity to FPL's customers by 2018. In contrast, even a short deferral of the decision to proceed would likely increase the cost of construction and delay the delivery of fuel savings, fuel diversity and reduced CO₂ emissions by several years.

18. FPL therefore respectfully submits that: (i) a need exists which the best information available today suggests will not be met through incremental DSM and renewable resources; (ii) new nuclear generation best meets the criteria set out in section 403.519(4)(b); (iii) based on the best economic data available today, new nuclear generation is projected to provide substantial economic benefits to FPL's customers; (iv) an affirmative determination of need for Turkey Point 6 & 7 preserves the option to pursue these economic benefits for customers while continuing to resolve uncertainty; and (v) the immediate costs of continuing development are moderate, while denial of this Petition would preclude the possibility of new nuclear coming on line in the 2018-2020 timeframe and thus forego the opportunity to reap the substantial potential benefits of new nuclear generation in that timeframe. For these reasons, and as more fully explained below and in the accompanying Need Study and prefiled testimony of FPL's witnesses, this Petition should be granted.

II. The Primarily Affected Utility (Rule 25-22.081(1)(a))

19. The Petitioner's name and address are:

Florida Power & Light Company
700 Universe Boulevard
Juno Beach, Florida 33408

20. The names and addresses of FPL's representatives to receive communications regarding this docket are:

William G. Walker, III
Vice President
Florida Power & Light Company
215 South Monroe Street
Suite 810
Tallahassee, Florida 32301-1859

R. Wade Litchfield
Vice President and
Associate General Counsel
Florida Power & Light Company
700 Universe Boulevard
Juno Beach, Florida 33408
Telephone: 561-691-7101

21. FPL is a Florida corporation with principal offices at 700 Universe Boulevard, Juno Beach, Florida 33408. FPL is a utility as defined in section 366.82(1), Florida Statutes, and is an applicant as defined in section 403.503(4), Florida Statutes, for purposes of section 403.519. FPL is the primarily affected utility within the meaning of Rule 25-22.081, F.A.C.

22. FPL is the largest investor-owned electric utility in Florida and is among the largest in the United States. FPL currently serves more than 4.41 million customer accounts in 35 counties. FPL's service area contains approximately 27,650 square miles within which the population is approximately 8.6 million. Besides being one of the most populous states in the nation, Florida continues to be one of the fastest growing. Over the past decade, FPL added an average of about 85,000 new customers each year. In addition, electric usage per FPL residential customer has increased by approximately 30% over the past 20 years, outstripping significant improvements in end-use efficiency and FPL's substantial DSM and conservations efforts.

23. FPL is charged with serving its existing customers, as well as new customers that locate in its service territory. FPL forecasts continued growth of customers in its service territory. The Company is projecting an annual average increase of approximately 85,000 new

customers for the next fourteen years. FPL projects that its annualized retail customer growth will be 2.0% for 2007, 2.1% for 2008, and an average of 1.7% for the next twelve years. In addition to significant projected customer growth, FPL forecasts significant increases in per-customer electrical load and energy usage. FPL projects that in 2007, energy use per FPL customer will be 1.9% above that of 2006, with an increase of 1.7% in 2008 and a compound annual average growth rate of 1.2% thereafter. Combining the growth in customers and the growth in energy use per customer yields a growth in energy sales estimated at 3.9% in 2007, 3.8% in 2008, and then an average of 2.9% for the next thirteen years.

24. In 2007, FPL experienced a coincident peak demand of 21,943 MW (summer), which is 333 MW lower than the all time record peak for FPL's service territory of 22,276 MW experienced in 2005. The winter peak for 2006/2007 was 16,815 MW, well below the all time high winter peak of 2002/2003, which was 20,190 MW. These electric demands reflect the effect of relatively mild weather in 2007 and the continuing impact of the 2005 hurricanes. FPL projects that summer peak demand will grow from 21,943 MW in 2007 to 30,091 MW in 2020, an increase over 2007 of 8,148 MW. Similarly, the winter peak is forecasted to grow from 16,815 MW in the winter of 2006/2007 to 29,308 MW in the winter of 2019/2020, an increase over 2007 of 12,493 MW.

25. FPL is part of a nationwide interconnected power network. FPL is interconnected directly with eight other electric utilities. Multiple points of interconnection enable power to be exchanged among utilities. FPL's interconnection points with other utilities are addressed in more detail in the Need Study. FPL's bulk transmission system is comprised of a total of 6,620

circuit miles of transmission lines. Integration of the generation, transmission and distribution system is achieved through FPL's 542 substations.

III. FPL's Resource Mix, Conservation, and Clean Energy (Rule 25-22.081(1)(a))

26. FPL is an industry leader in conservation through DSM, and has one of the cleanest generating fleets in the country. FPL meets its customers' energy needs through a mix of conventional and nuclear generating units, purchased power including renewable generation, and DSM. FPL's existing generating resources are located at 14 sites distributed geographically throughout its service territory, and also include partial ownership of one unit located in Georgia and two units located in Jacksonville, Florida. In the summer of 2007, FPL's generating fleet totaled approximately 22,123 MW (summer) of capacity and its generating units consisted of four nuclear steam units, three coal steam units in which it holds partial ownership interests, 12 combined cycle units, 17 fossil fuel steam units, 48 combustion turbines, and five diesel units. In 2006, FPL's fuel mix (based on MWh supplied) was as follows: natural gas (50%); nuclear (21%); coal (18%); fuel oil (9%); and other sources (about 2%).

27. FPL presently has a long-term Unit Power Sales ("UPS") contract to purchase up to 931 MW of coal-fired generation from Southern Company. FPL also has a long-term contract with Jacksonville Electric Authority for the purchase of 381 MW (summer) of coal-fired generation from St. John's River Power Park ("SJRPP") Units One and Two. In addition, FPL presently has a number of short-term, firm capacity purchased power contracts with a variety of suppliers totaling 943 MW (summer) for 2007. However, in 2015 the UPS contract expires and

FPL expects that Internal Revenue Service regulations will require the Company to stop taking power under the SJRPP contract.

28. FPL has contracts to purchase firm capacity and energy from five cogeneration and small power production facilities totaling 738 MW for 2007. This value drops to 595 MW by 2016 due to the expiration of three contracts with municipal waste-to-energy facilities. Though analyses are still underway, for purposes of this filing FPL is optimistically assuming that it will be able to extend these contracts. The current total capacity under contract from these three purchases, 143 MW, is assumed to continue through 2026, contributing to a total assumption of 738 MW through 2020.

29. FPL continues to encourage the development of renewable sources of energy in Florida and elsewhere and seeks to enter into contracts with renewable energy suppliers that will benefit FPL's customers. For example, in order to identify viable new renewable firm capacity and/or energy resources, FPL recently issued a renewables request for proposals ("RFP") open to any project which could provide renewable energy or capacity. FPL's renewables RFP garnered national attention, and the Company received inquiries from parties in New York, Wisconsin and California, among others. FPL has received three firm capacity proposals in response to its RFP. These three proposals, one from a waste-to-energy facility and two from biomass facilities, would provide a total of 144 MW of capacity starting between March 2011 and January 2012 with proposed end dates ranging from 2021 to 2036. Though FPL is still evaluating these proposals, FPL's filing assumes that it will enter into contracts to purchase all 144 MW of capacity represented by the RFP responses.

30. FPL is also fostering the expansion of renewable energy sources through development of its own renewable generation projects. FPL has announced plans to pursue development of a wind project in St. Lucie County and has ongoing research initiatives involving solar, wind, biomass, landfill, waste water, and ocean current resources. In addition, the Company announced at the 2007 Clinton Global Initiative that it will pursue a major solar energy project, which is expected to result in installation of up to 300 MW of solar thermal generation capacity in Florida. If successfully implemented, these additional renewable resources would be incorporated into FPL's resource plan without diminishing the need for Turkey Point 6 & 7 in 2018 and 2020, respectively.

31. Another way FPL encourages existing and potential sources of renewable energy is through its popular voluntary green power pricing program, Sunshine Energy. The Sunshine Energy program started as a residential pilot project just under three years ago, and has grown to more than 34,000 residential customers participating as of June 2007. In fact, the program is ranked in the top five nationally in terms of participation, and has been recognized with the Green Power Leadership Award from the U.S. Environmental Protection Agency and the U.S. Department of Energy. Under the program as it is currently configured, residential and business customers may purchase 1,000 kWh blocks of renewable energy. Each block represents the purchase of 1,000 kWh of Tradable Renewable Energy Certificates ("TRECs") from renewable sources, with first purchase preference given to Florida sites. The program supports the development of renewable energy supplies that otherwise would not be developed without funding from the TRECs. In order to promote solar development in Florida, the program was

designed to commit to construct 150 kW of solar for each 10,000 residential customers participating in the program.

32. FPL employs comprehensive and cost-effective DSM programs to reduce load requirements and encourage conservation. Without its DSM, FPL would require far more additional capacity to meet present and projected needs. FPL has long been one of the key innovators in the field of DSM, and is a nationally ranked industry leader in conservation and load management. The U.S. Department of Energy, which reports on the effectiveness of utility DSM efforts through its Energy Information Administration, ranks FPL number one nationally for cumulative conservation achievement and number four in load management based on the most current data available (2005). In fact, while FPL serves only about 3 percent of total United States consumers, it has achieved 13 percent of total U.S. utility conservation and 6 percent of total load management.

33. FPL's accomplishments in and future projections for DSM correspond to a reduction in FPL's power-supply requirements. From their beginning in 1978 through year-end 2006, FPL's DSM efforts have resulted in a cumulative summer peak reduction of approximately 3,659 MW (at the generator) – or the equivalent of 11 medium-sized power plants. The Commission recently approved FPL's proposal to modify eight existing DSM programs and to introduce two new ones. Additionally, FPL recently announced its plan to install a "smart network" by which customers can better manage their electricity usage. Nonetheless, despite current achievements in DSM and the substantial role conservation and DSM will continue to

play in the future, there simply is simply not enough cost-effective DSM to mitigate the need for additional baseload capacity on FPL's system, as discussed further below.

34. FPL and its parent company, FPL Group, Inc., have also been recognized as environmental leaders in the utility industry, with emissions rates for nitrogen oxides ("NO_x"), sulfur dioxide ("SO₂"), and CO₂ among the lowest of their peers nationwide. Clean energy, of course, is an important part of Florida's and FPL's energy future with the prospect of significant regulation and reduction of greenhouse gas emissions such as CO₂. While some renewable generating sources produce zero emissions, others do not. And none of the renewable resources in Florida can be considered to provide baseload capacity on any material scale. Nuclear energy is the only baseload generation technology available in Florida that produces zero greenhouse gas emissions. Therefore, as FPL and other utilities across this high growth state face the need to add baseload generating units to meet customers' needs, nuclear energy in general, and the addition of Turkey Point 6 & 7 in particular, will be essential if meaningful reductions in CO₂ or other greenhouse gas emissions are to be achieved.

IV. The Need for Turkey Point 6 & 7 (Rule 25-22.081(1)(c) and (2)(a))

35. Turkey Point 6 & 7 will provide a needed baseload capacity addition to FPL's generating fleet as well as help FPL to satisfy its 20% reserve margin criterion. Neither renewable resources nor conservation and DSM can satisfy these needs, alone or in combination, because they do not represent reliable baseload capacity, cannot be depended upon to be available at the time of system peak, and, in any event, there simply is not enough of either in

Florida to make a meaningful contribution towards achieving a 20% reserve margin criterion. Even if renewable resources and conservation are achieved at levels far greater than expected, FPL's need for Turkey Point 6 & 7 will not be eliminated. Moreover, the addition of Turkey Point 6 & 7 will not displace the potential for increasing the use of these resources, given the scope of FPL's system needs and the anticipated rate of growth, as discussed in more detail below.

36. FPL determined in its 2006/2007 Integrated Resource Plan ("IRP") that it would need significant additional resources starting in 2012 to meet its reserve margin criterion. In performing its analysis, FPL employed two reliability criteria. First, FPL sought to maintain sufficient capacity to keep its loss of load probability to less than 0.1 day per year. Second, FPL sought to maintain the 20% reserve margin that it committed to maintain, and the Commission approved, in Order No. PSC-99-2507-S-EU. Based on those reliability criteria, FPL determined it would need a minimum of either 6,156 MW of new supply (power plant construction or power purchase) or approximately 5,130 MW of new DSM to meet its reserve margin requirements.

37. As mentioned above, DSM is a significant component of FPL's current resource mix. DSM goals for the years 2015 through 2019 will be set by the Commission in its next DSM goals-setting process, which is expected to begin in 2008. Presently, FPL estimates it will achieve the implementation of an additional 1,899 MW at the generator (after accounting for line losses for reductions at the meter) of summer DSM demand reduction from August 2006 through August 2020. Based upon FPL's accomplishments and projections, FPL will have avoided approximately 6,584 MW of generation capacity, taking into account load losses and reserve

margin, by 2020 – or about three times the size of Turkey Point 6 & 7. FPL’s projected need of 6,156 MW, however, is in addition to the 1,899 MW of DSM that FPL projects adding from 2006–2020. FPL’s projected need also already accounts for the 287 MW of capacity from renewable resources FPL plans to purchase⁶ and all of FPL’s previously committed generation projects. The construction projects included in FPL’s determination of electrical need are the new 1,144 MW CC unit at FPL’s existing Turkey Point plant site (Turkey Point Unit 5) that was placed into service in mid-2007, the new 1,219 MW CC units at the West County Energy Center (“WCEC”) that are scheduled to be placed into service in mid-2009 (WCEC Unit 1) and mid-2010 (WCEC Unit 2) and a series of new units and other capacity additions projected for the 2011-2017 time period. Finally, FPL’s projected need also accounts for its plan to increase the capacity of its existing nuclear units by 414 MW, which is the subject of FPL’s separate petition for a determination of need, filed on September 17, 2007. In short, there is no reasonable scenario under which the projected need for Turkey Point 6 & 7 will not manifest itself.

38. FPL’s reliability analyses showed that – with no additional resources beyond its existing generating units, existing purchases, conservation and renewable efforts, and the committed construction capacity additions (including the proposed capacity uprates to FPL’s four existing nuclear units) mentioned above – FPL would not meet its summer reserve margin criterion of 20% starting in the summer of 2012 and for each summer thereafter. With Turkey Point 6 & 7, FPL will still need thousands of additional megawatts of generation (renewable or otherwise) or additional DSM in order to maintain its reliability criterion of a 20% reserve

⁶ This represents the expiring municipal waste-to-energy contracts (143 MW) that FPL assumes it will be able to extend and the renewable RFP capacity (144 MW) that FPL assumes it will enter into contracts to purchase.

margin for those years. Turkey Point 6 & 7 is needed to maintain the electric system reliability and integrity of FPL and Peninsular Florida.

39. Further, as discussed in FPL's 2007 Ten Year Site Plan ("TYSP") and as highlighted in the Need Study and testimony accompanying this Petition, the imbalance between the amount of generating capacity located in the southeast area of FPL's service territory and the electrical load for this region continues to increase as load increases without a corresponding amount of generation added in this area. The southeast area of FPL's system includes Miami-Dade County, Broward County and a portion of Palm Beach County and is referred to in this Petition and the Need Study as Southeast Florida. The electrical load for this region has traditionally been the majority of FPL's entire system load, and it continues to grow. New generating capacity and/or new transmission facilities will have to be built in Southeast Florida to maintain system reliability. The integration of the proposed Turkey Point 6 & 7 will have a positive impact on the Southeast generation/load imbalance.

40. In addition to the physical need for additional capacity, particularly in the Southeast region, Turkey Point 6 & 7 is also needed for a variety of qualitative reasons. System reliability will be improved by reducing reliance on fossil fuel and improving fuel diversity, while at the same time reducing FPL's average system CO₂ emissions. As shown in the accompanying Need Study, and supported by testimony, Turkey Point 6 & 7 is expected to produce adequate electricity at a reasonable cost, improve system efficiency, and maintain system reliability.

V. The Proposed Electrical Power Plant (Rule 25-22.081(1)(b) and (2)(b))

41. Upon an affirmative determination of need by this Commission, FPL proposes to commence the process of licensing, constructing and operating two additional, new-generation nuclear generating units at its existing Turkey Point power plant site, Turkey Point 6 & 7. The Project will represent a large investment in Florida, with significant positive impacts on the state's economy. Construction of the Project will proceed over several years and employ thousands of workers. Once completed, the Project will require an ongoing workforce of approximately 700 full time employees to operate and maintain it.

42. FPL has conducted an engineering review of available designs and has determined that all are technically feasible, safe, and licensable. The criteria for design selection thereby have been reduced to criteria related to cost and execution risk management. At present, FPL is evaluating the available designs that could be used for these new units, according to three principal criteria: 1) the estimated capital cost of the Project; 2) the ability to manage cost risk throughout the Project; and 3) the execution capabilities of the team of Vendor/Engineer/Constructor that will design, construct and commission the Project. FPL has determined that two designs – the GE ESBWR and the Westinghouse AP1000 – are best positioned to satisfy these criteria. The GE ESBWR is designed to have a nominal output of approximately 1,520 MW. This design is still in the process of being certified by the NRC, but such certification is expected to be achieved in time for it to be considered as a valid option. The Westinghouse AP1000 is designed to have a nominal output of approximately 1,100 MW. As explained above, FPL's need for additional capacity in the 2018-2020 time period is much larger

than the total output that will be provided by Turkey Point 6 & 7, regardless of whether the GE ESBWR or Westinghouse AP1000 design is ultimately chosen.

43. The Turkey Point site is well suited to host FPL's first new-generation nuclear units. The site is relatively secluded and has a long history of supporting safe and secure nuclear generation. At the same time, it is close to FPL's load center and locating the nuclear units there will have a positive impact on the recurring imbalance between generation and load in the Southeast Florida region. Finally, the existing transmission and transportation infrastructure at the Turkey Point site will help minimize the cost and regulatory requirements associated with supporting the operation of new units there.

44. Because of the lengthy regulatory, design and construction processes for nuclear units, a determination of need for Turkey Point 6 & 7 is required well in advance of the plant's projected in-service date. For this reason, and also because of the lack of recent U.S. nuclear construction experience, FPL cannot project the expected installed cost for Turkey Point 6 & 7 with the same degree of certainty that it typically does for need determinations of non-nuclear power plants. The Florida Legislature recognized that this would be the case when it amended section 403.519 to provide a separate mechanism for nuclear-unit need determinations: it provides for a "non-binding cost estimate" with respect to nuclear units.

45. FPL has conducted an extensive review of information currently available within the industry on the expected cost of new-generation nuclear units. This has included a detailed analysis of the TVA Bellefonte study (the "TVA Study"). Based on that review and adjusted for Florida-specific and site-specific factors, differences in anticipated construction timing, and cost

elements not included within the TVA Study, FPL has determined as a non-binding cost estimate that Turkey Point 6 & 7 will cost between \$3,108 and \$4,540 per kW of installed capacity, in 2007 dollars. Using for illustrative purposes a cost of \$3,800 per kW, which represents the approximate mid-point of the foregoing non-binding cost estimate for Turkey Point 6 & 7, FPL estimates that the base revenue requirements for the first 12 months of operation are approximately \$1,242 million for Turkey Point 6 and \$761 million for Turkey Point 7. Turkey Point 6 & 7 will represent one of the largest capital projects ever in the state of Florida and in the history of the U.S. electric industry, demonstrating the particular need for regulatory certainty and an on-going, collaborative review process.

46. As part of the Project, FPL needs to reliably interconnect and integrate Turkey Point 6 & 7 with FPL's transmission system to deliver between approximately 2,200 MW and 3,040 MW of new generation from the Turkey Point site, depending upon whether 1,100 MW or 1,520 MW units are selected. This interconnection and integration will be accomplished as follows:

- Turkey Point 6 & 7 will be connected at 500 kV to a new switchyard at the site. This new switchyard will be connected by two 500 kV transmission lines to the 500 kV section of the existing Levee substation in central Miami-Dade County, which is located approximately 42 miles north of the Turkey Point switchyard.
- A new 230 kV line, approximately 13 miles long, will also be required from the Levee substation to the Gratigny substation located north and east of the Levee substation in central Miami-Dade County. The new switchyard at Turkey Point will

also have a 230 kV section. The new 500 and 230 kV sections will be connected via a 500/230 kV auto-transformer.

- The new 230 kV section will be connected to the Davis substation in southern Miami-Dade County utilizing an approximately 18 mile line which will be rerouted from the existing Turkey Point plant switchyard and rebuilt to larger capacity.
- The 230 kV line rerouted from the existing Turkey Point plant switchyard will be replaced with a new 230 kV circuit from the switchyard to the Levee 230 kV substation.

The aforementioned facilities are required regardless of whether Turkey Point 6 & 7 is built with 1,100 MW or 1,520 MW units. Depending upon the output of Turkey Point 6 & 7, certain other 230 kV and 138 kV upgrades to existing facilities may be required. A number of transmission system studies have been initiated to more fully understand the physical and operational impacts of the Project, and thereby more accurately assess the range of economic costs associated with the proposed Project. An estimate of transmission-related costs is included in the non-binding cost range for the Project.

47. Additionally, there is the potential that interconnecting a Turkey Point 6 or 7 unit that is larger than the largest single generator in the Peninsular Florida region may require upgrades to the transmission system to accommodate the instantaneous loss of the larger generator. The instantaneous loss of any generator in Peninsular Florida results in a sudden in-rush of power into Florida from the eastern United States interconnection reacting to make up for the deficiency in generation. The transmission system must be capable of sustaining the loss of

the single largest generator without violating any North American Electric Reliability Corporation (“NERC”) and Florida Reliability Coordinating Council (“FRCC”) Reliability Standards. This requirement may have a direct impact on the import capability from the Southeast Electric Reliability Council (“SERC”). Currently, based upon preliminary assessments by FPL, the sudden outage of a unit size of approximately 1,200 MW gross output or less should not adversely impact the FRCC’s import capability from SERC in this time frame. As the unit size increases, more detailed studies will be needed to determine the specific impacts and mitigation alternatives. The expected cost efficiencies of the larger units could offset the cost of these upgrades.

48. FPL operates its current fleet of nuclear units extremely safely: there has not been a single radiation-related injury to any employee or member of the public associated with the units’ operation. While other federal and state governmental agencies have jurisdiction with respect to determining the radiological-safety and environmental compliance characteristics of Turkey Point 6 & 7, the Commission can be assured that FPL will construct and operate all aspects of the plant in a manner that is fully compliant with applicable nuclear safety and environmental laws and regulations, consistent with FPL’s commitment to good environmental stewardship. Importantly, because Turkey Point 6 & 7 will be nuclear fueled, its operation will create essentially none of the air emissions – SO₂, NO_x, mercury, CO₂, etc. – that are inescapable by-products of combustion-based electric generating alternatives.

VI. Generating Alternatives and Fuel Diversity (Rule 25-22.081(1)(d) and (2)(a))

49. In order to fully evaluate the decision to add Turkey Point 6 & 7, it was necessary also to analyze non-nuclear alternatives that FPL would likely pursue if the Project were not built. Most renewable resource options are unable to meet baseload generating needs. Even with the state's strong encouragement of the development of renewable resources in Florida, and FPL's commitments to solar generation, the realities of land-use economics and the current relatively low level of renewable resource availability make it unlikely that the state can count on energy from renewable resources to meet any large portion of its power supply needs. Therefore, FPL evaluated alternative construction options with which it could meet its capacity needs. The evaluation focused on conventional gas-fired and emerging coal-to-gas technologies that could be developed, permitted and constructed in time to serve the projected load. These include gas-fired CC units and coal-fired IGCC units, which are representative of what FPL might build if Turkey Point 6 & 7 is not built. These alternative units were then combined into representative alternate resource plans that could be compared to a resource plan featuring Turkey Point 6 & 7. This resource plan was designated as the "Plan with Nuclear" and the alternate resource plans were designated as the "Plan without Nuclear – CC" and the "Plan without Nuclear – IGCC."

50. These technologies were examined within FPL's IRP process which employs a multi-year expansion plan analysis to evaluate the economics of competing generating options. FPL considered a range of fossil fuel price scenarios and environmental compliance cost

scenarios, including a range of CO₂ emission compliance costs although no such costs are currently imposed by statutes or regulations.

51. As part of the analysis, FPL determined breakeven costs for each of the nuclear scenarios compared with each of the scenarios for the two alternative Plans without Nuclear. The breakeven capital cost ranges show the current projection for the range of nuclear capital costs that would allow the economically viable addition of two new nuclear units, one in 2018 and one in 2020, to yield identical cumulative present value of revenue requirement (“CPVRR”) costs over a 40-year period compared to the alternative expansion plans. Under a wide range of assumptions about fuel and environmental costs, the Plan without Nuclear – CC is less expensive on a CPVRR basis than the Plan without Nuclear – IGCC. Therefore, FPL’s analysis of breakeven costs focused on the Plan without Nuclear – CC. For that plan, the economically viable construction cost range is \$2,000 to \$5,000/kW. This compares favorably with FPL’s non-binding construction cost estimate of \$3,108 to \$4,540/kW for Turkey Point 6 & 7. And, of course, the NPVRR analysis does not fully capture many benefits such as fuel diversity, fuel supply reliability, energy independence, and zero CO₂ emissions that Turkey Point 6 & 7 could deliver but which the alternative expansion plans would not. Consequently, the Commission should approve a need determination with respect to Turkey Point 6 & 7 so as to commence critical path pre-construction activities that will preserve the option for new nuclear units that are commercially operable beginning in 2018.

52. FPL also conducted fuel diversity analyses focused on the projected annual fuel mixes for the three resource plans for the 2018–2021 time period. These years were chosen to

address the year when the first new nuclear unit is projected to go in-service (2018) through the first year in which both new nuclear units are in-service for a full year (2021). FPL's fuel diversity analyses showed that the Plan with Nuclear holds a significant fuel diversity advantage as compared to the Plan without Nuclear – CC that is the next most economically viable alternative. With the addition of Turkey Point 6 & 7, it is projected that FPL's system will supply approximately 27% of its energy with nuclear, about 65% with natural gas, and about 7% with coal/petroleum coke. By comparison, the Plan without Nuclear – CC would result in a supply of energy of only approximately 16% from nuclear, about 75% with natural gas, and about 7% with coal/petroleum coke.

53. The primary benefits of the more balanced fuel mix and greater fuel diversity provided by the addition of Turkey Point 6 & 7 are better system reliability and reduced price volatility. An electric system that relies on a single fuel and a single technology to generate all the electricity needed to meet its customers' demand, all else equal, is less reliable than a system that uses a more balanced, fuel-diverse generation portfolio. In addition, greater fuel diversity mitigates the impact of wide or sudden swings in the price of one fuel, a phenomenon that has characterized the natural gas market over the last several years.

54. Regarding improved system reliability, an electric system that relies exclusively on one fuel is more susceptible to events that cause delays or interruptions in the production or delivery of that fuel. For example, in 2005 a significant number of natural gas production facilities in the Gulf of Mexico were shut down as a result of hurricanes. The shutdown of these facilities, which occurred with very little advance warning, significantly reduced the quantities of

natural gas available to FPL to meet electricity demand. Had FPL's system relied exclusively on natural gas to produce electricity it would have been difficult, if not impossible, to continue to meet its customers' demand for electricity until some gas production capability was restored. Adding nuclear fuel, for which sufficient fuel for an 18 month operating cycle is loaded into the reactor vessel, thus provides a physical hedge against the unavailability of natural gas or fuel oil, which improves FPL's overall system reliability. Similarly, the diversity in transportation methods and routes for nuclear fuel compared to natural gas and oil (trains and/or trucking compared with pipelines and barges, respectively) helps mitigate the effect of problems related to transportation and delivery, as well as production, thus further improving overall system reliability.

55. Turkey Point 6 & 7 will provide the needed power and fuel diversity in an environmentally responsible manner. Because Turkey Point 6 & 7 will be nuclear-fueled, its operation will create essentially none of the air emissions – SO₂, NO_x, mercury, CO₂, etc. – that are inescapable by-products of combustion-based electric generating alternatives. And as a large, baseload generating facility with zero emissions, Turkey Point 6 & 7 will be essential to meeting any targeted reduction in greenhouse gases. The addition of Turkey Point 6 & 7 will reduce FPL's already low annual CO₂ emissions by approximately seven million tons, or 10%, as compared to adding combined cycle units, and by approximately 17 million tons, or 21%, as compared to adding IGCC units. With the addition of Turkey Point 6 & 7, FPL will continue to be among the very cleanest generating utilities in the nation and will continue to have the lowest CO₂ and other greenhouse gas emissions rates of any major utility in the state of Florida.

56. FPL continues to track the technological development of existing and emerging generation technologies. Existing technologies are those such as natural gas combined cycle or wind power, with which FPL and other industry participants have considerable experience and for which much is known regarding technological capability and costs. In contrast, emerging technologies are those technologies which do not currently provide a significant portion of electrical generation, but hold some potential for doing so in the future. Technologies such as ocean energy generation qualify as emerging generation technologies. Such technologies have potential, but are in early stages of development where the true long term cost and reliability have yet to be proven.

57. FPL does not anticipate that the improvements to existing or emerging technologies will be sufficient in the next ten to twenty years to diminish the importance of pursuing new nuclear technology today. In addition, there will be a capacity need of another 3,120 MW to 3,960 MW even with the addition of Turkey Point 6 & 7. Thus, the future electrical capacity requirements of FPL's customers are so much larger than the expected output of Turkey Point 6 & 7 that if emerging technologies arise in either generation or DSM which can be implemented cost-effectively on a large scale in Florida, there will be ample room for deploying such technologies.

58. Based upon extensive quantitative and qualitative evaluations of alternative technologies, FPL selected Turkey Point 6 & 7 as the best choice to provide reliable power at a reasonable cost (including low and stable fuel costs) in order to meet a growing demand for electricity. Turkey Point 6 & 7 will also address each of the additional elements that the

Legislature directed the Commission to consider when it amended section 403.519 in 2006: whether a proposed generating addition 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.” For the reasons stated in this Petition, the accompanying Need Study and supporting testimony, Turkey Point 6 & 7 is the most cost-effective source of power available, taking into account the following:

- It will improve fuel diversity. FPL’s nuclear generation will increase from about 16% to about 27% of its generating fleet.
- It will reduce Florida’s dependence on imported fuel oil and natural gas. For just the year 2021, Turkey Point 6 & 7 is projected to save about 28 million barrels of oil (if the equivalent output were generated with oil-fueled units) or almost 125 billion cubic feet of natural gas (if the equivalent output were generated with CC units).
- It will reduce air emissions and air emission compliance costs. Compared with natural gas or IGCC generation that might otherwise be installed, over a 40-year period of operation, Turkey Point 6 & 7 will displace between 21,300 to 49,200 tons of NO₂, approximately 14,200 to 75,400 tons of SO₂, and about 266 million to 700 million tons of CO₂. For possible CO₂ compliance costs alone, the cumulative 40-year cost for alternative generation could range from \$6 billion to \$28 billion or more for combined cycle generation, and \$17 billion to \$73 billion or more for IGCC generation.

- It will contribute to the long-term stability and reliability of the electric grid. Turkey Point is located close to FPL's load center; hence, the Project will address the recurring imbalance between generation and load in the Southeast Florida region.

Furthermore, Turkey Point 6 & 7 will achieve all these objectives with essentially no greenhouse gas emissions, a feat that is impossible with any other large-scale generating resource viable now or in the foreseeable future in Florida. Without this essential and invaluable contribution, FPL doubts that significant greenhouse gas emission reduction targets can be met.

VII. Non-Generating Alternatives (Rule 25-22.081(1)(e))

59. As discussed in Section III of this Petition, FPL is an industry leader in conservation and DSM alternatives. FPL has taken all existing and aggressive projections of future conservation and DSM into account in evaluating the need for Turkey Point 6 & 7. Despite FPL's outstanding accomplishments in conservation and load management, there is insufficient additional, cost-effective DSM to eliminate FPL's capacity needs through 2020, as discussed in Section IV. FPL's actual DSM savings would need to be almost three times higher than projected in order to meet the Company's projected capacity needs through 2020. Such a result is unrealistic assuming even the most dramatic improvements in technology, building codes and customer receptivity to energy efficiency, and without any regard to the costs to achieve such reductions. Therefore, taking into account all reasonably achievable, cost-effective DSM known to FPL, Turkey Point 6 & 7 is still needed in order to meet the needs of FPL's customers beginning in 2018.

VIII. Adverse Consequences of Delay (Rule 25-22.081(1)(f))

60. Denying FPL's request for an affirmative determination of need for Turkey Point 6 & 7 would effectively eliminate nuclear power as a generation source to meet FPL's baseload needs for the foreseeable future. Taken together with the Commission's recent decision to deny FPL's request to construct advanced, clean coal technology baseload units in Docket No. 070098-EI, FPL would be required to rely even more on natural gas-fired generation to meet its baseload needs in the future. This regulatory result would seriously jeopardize FPL's efforts to enhance the reliability of its system, improve the balance of power plant fuel diversity, and reduce Florida's dependence on fuel oil and natural gas.

61. The FPL system is projected to be about 15% more dependent on natural gas by 2021 if the Commission denies FPL the authorization to construct Turkey Point 6 & 7 and additional natural gas-fired CC units must be added to FPL's generation portfolio instead. The greater reliance FPL has on natural gas, the greater likelihood that electricity prices will experience increased volatility. Promoting supply diversity and reliability is a critical policy objective because a diverse mix of energy sources enables FPL to best balance the cost of electricity production, availability and environmental impacts for its customers. Due to system growth alone, the contribution of nuclear generation to the FPL system is expected to decline over the next decade, and therefore the proposed capacity from Turkey Point 6 & 7 is essential, among other reasons, simply to maintain the diversity currently contributed by its existing nuclear fleet.

62. Expanding nuclear energy in its supply portfolio is also a critical part of FPL's strategy for combating climate change. A regulatory decision denying FPL the ability to pursue new nuclear capacity would eliminate a proven and key tool to reducing greenhouse gas emissions in Florida. Carbon dioxide—the principal greenhouse gas—is a major focus of policy discussions in Florida and across the country aimed at reducing emissions from power generators. Nuclear power plants like those proposed in this proceeding produce large amounts of electricity without emitting any CO₂ or other greenhouse gases. Without new nuclear energy in FPL's supply portfolio, greenhouse gas emissions will be significantly higher in Florida.

IX. Discussions With Other Electric Utilities Regarding Partial Ownership of Turkey Point 6 & 7 (Rule 25-22.081(2)(d))

63. FPL has held preliminary discussions regarding the potential for ownership participation with several Florida utilities who have expressed interest. As FPL proceeds through the licensing phase and begins dedicated commercial negotiations with the selected vendor, opportunities for partnership with Florida utilities will continue to be explored.

X. Relationship Between Need Determination and Annual Cost Recovery Reviews Under Rule 25-6.0423

64. With an affirmative determination of need, FPL will be allowed recovery of specific costs associated with the development, licensing and construction of new nuclear generation via the NPPCR Rule developed earlier in 2007. The NPPCR Rule was specifically created to enable utilities to take the steps necessary to develop nuclear generation and

contemporaneously recover certain costs through prescribed mechanisms. The process requires FPL to file annually a schedule describing its actual/estimated costs for the current year and projected costs for the subsequent year for approval by the Commission. Additionally, the filing will require the utility to assess annually the advisability of continuing the project given the then current project cost, schedule and general economic information relied upon in the original Need Order. The filing enables the necessary level of on-going oversight and assures the Commission and FPL's customers that a prudent and well-informed stepwise decision making process will be employed through all phases of the Project.

65. Proper and effective use of the annual review process will help align customer and investor interests and permit rational and efficient decision making, which is particularly important given the number of uncertainties specific to the deployment of new nuclear generation, as well as economic and regulatory uncertainties in general. Uncertainties unique to the construction of new nuclear generation include the amount of time needed to receive all necessary approvals and licenses, the ultimate cost of long lead items, policies related to spent fuel storage, and unanticipated industry events. Future environmental policies such as the regulation of greenhouse gases and future fossil fuel prices will also affect the relative cost-effectiveness of the Project. However, as discussed above, FPL's current evaluation shows that the non-binding cost estimate for the Project falls below the range of the breakeven costs of the alternatives for all but one fuel and environmental compliance cost scenario analyzed, supporting an affirmative determination of need.

66. In order to position FPL to pursue the earliest practical deployment schedule for Turkey Point 6 & 7, the Company expects that it would have to start placing orders for long-lead procurement items soon after the Project's need determination is granted. FPL does not yet know precisely what items would require long-lead procurement decisions, how far in advance those decisions would have to be made, or the amount or timing of advance payments that would be required in order to secure and maintain a spot in the fabrication queue for those items. However, FPL expects that the reactor pressure vessel, steam turbine/generators, and plant simulator are among the long-lead procurement items that will be required.

67. FPL anticipates that many, if not all, of the long-lead procurement items would have to be ordered and certain advance payments made well before construction actually commenced on the Project. As such, FPL believes that those advance payments would qualify under subsection (1)(e) of the NPPCR Rule as "Pre-construction costs," which are defined to be "costs that are expended after a site has been selected in preparation for the construction of a nuclear power plant, incurred up to and including the date the utility completes site clearing work." As "preconstruction costs," the advance payments would be subject to prompt prudence review and current cost recovery in accordance with subsection (5)(a) of the NPPCR Rule:

A utility is entitled to recover, through the Capacity Cost Recovery Clause, its actual and projected pre-construction costs. The utility may also recover the related carrying charge for those costs not recovered on a projected basis. Such costs will be recovered within 1 year, unless the Commission approves a longer recovery period. Any party may, however, propose a longer period of recovery, not to exceed 2 years.

1. Actual pre-construction costs incurred by a utility prior to the issuance of a final order granting a determination of need pursuant to Section 403.519 , F.S., shall be included in the initial

filing made by a utility under this subsection for review, approval, and a finding with respect to prudence.

2. The Commission shall include pre-construction costs determined to be reasonable and prudent in setting the factor in the annual Capacity Cost Recovery Clause proceedings, as specified in subparagraph (5)(c)3. of this rule. Such costs shall not be subject to disallowance or further prudence review.

68. Because of their timing and potential magnitude, FPL needs to know how it will be permitted to recover advance payments for long-lead procurement items, if it is to proceed with the Project on the earliest practical deployment schedule to preserve the potential 2018-2020 in-service dates. Therefore, as an integral part of this Petition, FPL asks the Commission to make an affirmative determination that (1) it is prudent for FPL to make advance payments for those long-lead procurement items that are reasonably necessary to preserve the potential for 2018-2020 in-service dates for the Project; and (2) when such advance payments are made prior to the completion of the Project's site clearing work, they are properly characterized as "pre-construction costs," to be recovered pursuant to the mechanism provided in the NPPCR Rule.

XI. Disputed Issues of Material Fact and Ultimate Facts Alleged

69. FPL is presently unaware of any disputed issues of material fact affecting this proceeding. In any event, consistent with the requirements of section 403.519, Florida Statutes, FPL's filing demonstrates that: (a) the Project is needed to maintain electric system reliability and integrity and to provide adequate electricity at a reasonable cost, taking into account the need for fuel diversity and supply reliability; (b) the Project is the most cost-effective option for

providing fuel-diverse generation capacity needed to meet the needs of FPL's customers beginning in 2018; (c) there is no reasonably available conservation or other non-generation alternative that would mitigate the need for Turkey Point 6 & 7; (d) the circumstances of this matter support a specific determination of the prudence of FPL's decision to construct Turkey Point 6 & 7, the institution of an annual review process with respect to the Project, and provision for cost recovery for the Project through future rates as provided for pursuant to Florida Statutes and the Commission's regulations; and (e) FPL would be prudent to make advance payments for long-lead procurement items which are reasonably necessary to preserve the potential for 2018-2020 in-service dates for the Project, with such advance payments made prior to the completion of the Project's site clearing work being properly characterized as "pre-construction costs" and recovered pursuant to the mechanism provided in the NPPCR Rule.

CONCLUSION

70. Given FPL's current fuel mix, the addition of a non-fossil fueled, emission free source of baseload generation is necessary to maintain system reliability, increase fuel diversity, and allow progress toward meaningful CO₂ emissions reductions. New nuclear generation is the most viable single resource option that can contribute to achieving these recent legislative objectives as codified in sections 366.92(1) and 403.519(4), Florida Statutes. Turkey Point 6 & 7 is a cost-effective and environmentally sound means of helping to meet FPL's growing capacity needs with new reliable, fuel-diverse, zero-emission baseload generation. In this regard, the Project presents several key advantages to FPL and its customers. The Project is needed to

meet reliability needs in 2018-2020 and will promote fuel diversity within FPL's system. The Project increases electric system reliability and integrity throughout Peninsular Florida with zero emissions, has a positive impact on the Southeast Florida load and generation imbalance, provides adequate power at reasonable cost, and is the most cost-effective alternative to provide needed capacity to FPL's system while promoting fuel diversity. FPL expects that it will need to make substantial advance payments for long-lead procurement items in order to ensure the delivery of such items on a schedule that preserves the potential for 2018-2020 in-service dates for the Project. Advance payments made prior to the completion of the Project's site clearing work are properly characterized as "pre-construction costs," to be recovered pursuant to the mechanism provided in the NPPCR Rule.

WHEREFORE, for the reasons set forth above, and as more fully set forth and described in the supporting testimony and documents included with this Petition, Florida Power & Light Company respectfully requests that the Commission:

A. grant an affirmative determination of need for the Project, and in so doing, express its strong support for the development of new nuclear generation, affirming the need to take steps now to preserve new nuclear generation as a resource option to meet future customer needs, acknowledge the risks and costs associated with a project of such magnitude and the corresponding stepwise role of the annual review process, and emphasize the importance of continued regulatory support throughout the process;

B. affirmatively determine that (1) it is prudent for FPL to make advance payments for those long-lead procurement items that are reasonably necessary to preserve the potential for 2018-2020 in-service dates for the Project; and (2) when such advance payments are made prior to the completion of the Project's site clearing work, they are properly characterized as "pre-construction costs," to be recovered pursuant to the mechanism provided in the NPPCR Rule; and

C. grant such additional appropriate relief as the case and law may permit.

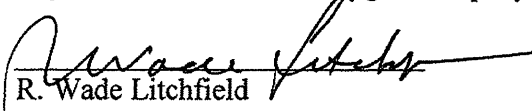
Respectfully submitted this 16th day of October, 2007,

R. Wade Litchfield
Mitchell S. Ross
John T. Butler
Bryan S. Anderson
Antonio Fernandez
Jessica A. Cano
Florida Power & Light Company
700 Universe Boulevard
Juno Beach, Florida 33408-0420

Stephen Huntoon
Florida Power & Light Company
801 Pennsylvania Avenue, Suite 220
Washington, D.C. 20004

Kenneth A. Hoffman
Rutledge, Ecenia, Purnell & Hoffman, P.A.
215 South Monroe Street, Suite 420
P. O. Box 551
Tallahassee, FL 32302-0551

Attorneys for Florida Power & Light Company

By: 
R. Wade Litchfield
Vice President and Associate General Counsel