

**BEFORE THE
FLORIDA PUBLIC SERVICE COMMISSION**

**DOCKET NO. 070602-EI
FLORIDA POWER & LIGHT COMPANY**

**IN RE: FLORIDA POWER & LIGHT COMPANY'S
PETITION TO DETERMINE NEED FOR
EXPANSION OF ELECTRICAL POWER PLANTS**

DIRECT TESTIMONY & EXHIBITS OF:

J.A. STALL

DOCUMENT NUMBER-DATE
08450 SEP 17 8
FPC-COMMISSION CLERK

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

FLORIDA POWER & LIGHT COMPANY

DIRECT TESTIMONY OF J.A. STALL

DOCKET NO. 07____-EI

SEPTEMBER 17, 2007

Q. Please state your name and business address.

A. My name is J.A. (Art) Stall. My business address is 700 Universe Boulevard, Juno Beach, Florida, 33408.

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

A. I am employed by Florida Power & Light Company (FPL or the Company) as Senior Vice President - Nuclear Operations, and Chief Nuclear Officer.

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

A. I am responsible for the safe operation of all of FPL Group, Inc.'s (FPL Group) nuclear assets, consisting of four nuclear units in Florida – two at Turkey Point Nuclear Plant (PTN) (of about 1,400 MW) and two at St. Lucie Nuclear Plant (PSL) (of about 1,680 MW), one in New Hampshire – Seabrook Station (of about 1,300 MW), and one in Iowa – Duane Arnold Energy Center (of about 600 MW). Additionally, I will be responsible for the safe operation of two nuclear units in Wisconsin – Point Beach Nuclear Plant (1,036 MW) when the pending acquisition of that plant by FPL Energy, LLC (FPL Energy) closes. I expect that closing to occur in the third quarter of 2007.

DOCUMENT NUMBER-DATE

08450 SEP 17 5

1 **Q. Please describe your educational background and business experience.**

2 A. I earned my Bachelor of Science degree in Nuclear Engineering from the
3 University of Florida in 1977. I also earned a Master of Business
4 Administration from Virginia Commonwealth University in 1983. I am a
5 career nuclear energy generation professional with more than 25 years of
6 nuclear generation operating experience. I joined Virginia Power Company in
7 1977, where I held various positions of increasing responsibility, including
8 superintendent of operations, assistant station manager for safety and
9 licensing, superintendent of technical services, and plant manager. I also held
10 a senior nuclear reactor operator license from the U.S. Nuclear Regulatory
11 Commission (NRC) while working at Virginia Power Company's nuclear
12 plants. In 1996, I joined FPL Group as the Site Vice President at the St. Lucie
13 Nuclear Plant. From 2000 to 2001, I was Vice President for Nuclear
14 Engineering at FPL Group. I have been Senior Vice President, Nuclear
15 Operations, and Chief Nuclear Officer at FPL Group since June 2001.

16 **Q. Are you sponsoring any exhibits in this case?**

17 A. Yes. I am sponsoring Exhibits JAS-1 and JAS-2, which are attached to my
18 direct testimony.

19 Exhibit JAS-1 World Association Nuclear Operators (WANO) Indices

20 Exhibit JAS-2 NRC Performance Indicators

1 **Q. What is the purpose of your testimony in this proceeding?**

2 A. The purpose of my testimony is to describe (a) the reasons for pursuing
3 uprates to FPL Group's nuclear plants at this time; and (b) to describe
4 objective indicators of FPL Group's nuclear power plant performance.

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

6 A. FPL Group's nuclear power plants are a source of reliable, safe, and cost
7 effective energy for FPL Group's customers. FPL Group's technical expertise
8 and organizational strength will enable FPL Group to execute uprates of its
9 PTN and PSL nuclear plants in a safe, reliable, and cost effective manner.
10 This project will enable FPL Group to deliver additional power from PTN and
11 PSL Uprates to customers at reasonable cost without additional construction
12 outside of the existing footprints of those plants. Given FPL's current fuel
13 mix, the addition of non-fossil fuel, non-greenhouse gas (GHG) emitting
14 sources for generation is necessary to maintain system reliability, increase fuel
15 diversity and allow progress toward meaningful GHG reductions.

16

17 **BACKGROUND ON FPL GROUP'S NUCLEAR DIVISION**

18

19 **Q. Please describe FPL Group's nuclear plants.**

20 A. FPL Group's long and successful involvement with nuclear power started in
21 the mid-1960s with the first order for nuclear generation in the South. FPL
22 Group's plans to build nuclear units at the Turkey Point site were announced
23 in 1965, and the first nuclear unit achieved commercial operation in 1972.

1 FPL Group is currently licensed by the NRC to operate PTN Units 3 and 4,
2 and PSL Units 1 and 2. PTN Units 3 and 4 are pressurized water reactors
3 designed by Westinghouse. Unit 3 commenced commercial operation in
4 1972, and Unit 4 did so in 1973. PSL Units 1 and 2 are pressurized water
5 reactors designed by Combustion Engineering (now owned by Westinghouse).
6 Unit 1 went into commercial operation in 1976, and Unit 2 did so in 1983.

7
8 FPL Group's affiliate FPL Energy also owns and operates nuclear plants
9 outside of Florida. FPL Energy Seabrook, LLC (FPLE Seabrook), an indirect
10 subsidiary of FPL Energy, owns 88.23% of and operates Seabrook Station, a
11 Westinghouse pressurized water reactor facility, located in New Hampshire.
12 FPLE Seabrook acquired its share of Seabrook Station in 2002.

13
14 FPL Energy Duane Arnold, LLC (FPLE Duane Arnold), an indirect subsidiary
15 of FPL Energy, owns 70% of and operates the Duane Arnold Energy Center
16 (Duane Arnold), a General Electric boiling water reactor facility located in
17 Iowa. FPLE Duane Arnold acquired its share of Duane Arnold in January
18 2006.

19
20 FPL Group and its affiliates have successfully operated six nuclear units at
21 four nuclear generating stations for 130 total combined years of safe, electric
22 generation. During that time FPL Group's nuclear generating units have
23 produced approximately 593 million MWh of electricity, which taken

1 altogether is enough electricity to serve the needs of all of FPL's 4 million-
2 plus customers for five years. The high availability rate of nuclear units and
3 the fact that they currently represent approximately 14% of the capacity and
4 20% of the energy output on FPL Group's system makes nuclear generation a
5 substantial contributor to FPL Group's system.

6 **Q. Describe the ownership structure for FPL Group's nuclear units.**

7 A. FPL Group owns 100% of PTN Units 3 and 4 and PSL Unit 1. FPL owns
8 85.10449% of PSL Unit 2. The balance of PSL Unit 2 is owned by the
9 Florida Municipal Power Agency, which owns 8.806%, and the Orlando
10 Utilities Commission, which owns 6.08951%. FPLE Seabrook owns 88.23%
11 of and operates Seabrook Station, and FPLE Duane Arnold owns 70% of and
12 operates Duane Arnold.

13 **Q. How long are FPL Group's nuclear units currently licensed to operate?**

14 A. In June 2002, FPL Group received renewed operating licenses from the NRC
15 for PTN Units 3 and 4, and in October 2003, FPL Group received renewed
16 operating licenses from the NRC for PSL Units 1 and 2. The renewed
17 licenses give FPL Group the authority to operate each unit for twenty years
18 past the original license expiration date should FPL Group choose to do so.
19 Accordingly, the current license expiration dates are as follows: for PTN Unit
20 3, 2032; for PTN Unit 4, 2033; for PSL Unit 1, 2036; and for PSL Unit 2,
21 2043. The current operating license expiration date for Seabrook is 2030, and
22 Duane Arnold operating license (which has not yet been renewed) expires in
23 2014.

1 **Q. Please describe the organization of FPL Group's Nuclear Division.**

2 A. FPL Group's Nuclear Division currently employs approximately 2,800
3 employees. The management team at each site reports to a Site Vice
4 President, who reports to the Vice President of Operations, who reports
5 directly to me. Additionally, the Vice Presidents of Nuclear Technical
6 Services, Plant Support, and Nuclear Training and Performance Improvement,
7 as well as an independent quality oversight organization, headed by the
8 Director of Nuclear Assurance, also report directly to me.

9

10 **UPRATE PROJECT**

11

12 **Q. Why is FPL Group pursuing a power uprate project at this time?**

13 A. FPL Group periodically evaluates alternatives to meeting the growing power
14 needs of its customers. FPL Group has implemented successful uprates at
15 PTN, PSL, and the Seabrook Nuclear Station in the past. FPL Group has
16 recently revisited the feasibility of uprating both PTN and PSL and
17 determined that this project can be accomplished in a cost effective, safe, and
18 reliable manner. I expect that this project can be executed successfully as
19 were other major projects under my direction: license renewal for PTN and
20 PSL and an uprate of Seabrook. Each of those projects was executed within
21 the project schedule and under budget.

1 **Q. Please summarize the reasons that favor approval of FPL’s request for a**
2 **determination of need.**

3 A. As discussed by FPL witness Sim, adding the capacity uprates for FPL’s four
4 existing nuclear units is the best choice for addressing FPL’s future capacity
5 needs starting in 2012 and 2013. Since the electric power needs of Florida
6 will continue to grow, uprating an existing nuclear plant, which will involve
7 no new plant construction and can be accomplished within the existing
8 nuclear plant footprints, is a reliable and an environmentally attractive way to
9 generate additional electricity.

10

11 In an era of increasing uncertainty, FPL’s focus needs to be on creating and
12 preserving a high level of resource optionality for its system. The addition of
13 the nuclear capacity uprates will immediately benefit FPL’s customers in
14 terms of fuel savings and enhanced system fuel diversity. In addition, as
15 addressed by FPL witness Sim, the additional capacity supplied by the uprates
16 will also result in deferral of new capacity additions in the 2014 – 2017 time
17 period.

18

19 Importantly, the PTN and PSL Uprates will reduce FPL’s system GHG
20 emissions consistent with the recent policy directives of Florida’s Governor
21 Crist. Given FPL’s current fuel mix, the addition of non-fossil fuel, non-GHG
22 emitting sources for generation is necessary to maintain system reliability,

1 increase fuel diversity and allow progress toward meaningful GHG
2 reductions.

3 **Q. When will FPL begin incurring costs associated with the PTN and PSL**
4 **Uprates?**

5 A. FPL will incur substantial costs beginning in 2007 in order to ensure that the
6 PTN and PSL Uprates can be completed in a timely fashion. As addressed in
7 the testimony of FPL witness Ousdahl, the Florida nuclear cost recovery
8 statute and rule provide a regulatory framework that encourages this sizable
9 investment by FPL's investors for the benefit of FPL's customers.

10 **Q. Are there external factors beyond FPL's control that could affect the**
11 **schedule for completion of the PTN and PSL Uprates?**

12 A. Yes. For example, the uprates project requires site certification approval from
13 the Florida Department of Environmental Protection, as well as NRC
14 approvals. Delays in receiving these approvals could affect the schedule for
15 implementation of the uprates.

16

17 **NUCLEAR PLANT PERFORMANCE**

18

19 **Q. What metrics are used by FPL Group to measure the performance of**
20 **FPL Group's nuclear plants?**

21 A. FPL Group uses two basic metrics to measure the performance of our nuclear
22 plants. Overall plant performance as measured by an objective numerical

1 index, and nuclear safety and reliability performance as measured by objective
2 indicators published by the NRC.

3 **Q. Please describe the overall quality of performance of FPL Group's**
4 **nuclear operations.**

5 A. FPL Group's nuclear plant performance, from both a safety and production
6 perspective, ranks among the best in the United States. This record is
7 confirmed by a variety of objective indicators used to measure plant
8 performance, including personnel safety, nuclear safety, operating reliability,
9 and cost. These objective performance indicators, known as the WANO
10 index, confirm that our plants are operating safely and reliably.

11
12 The WANO index is an internationally recognized metric of nuclear plant
13 safety and reliability. The WANO index is calculated by summing weighted
14 values of the following key indicators: (1) Unit Capability Factor; (2) Forced
15 Loss Rate; (3) Unavailability of High Pressure Safety Injection System;
16 (4) Unavailability of Auxiliary Feedwater System; (5) Unavailability of
17 Emergency AC Power System (Site Average); (6) Unplanned Automatic
18 Reactor Trips; (7) Collective Radiation Exposure; (8) Nuclear Fuel
19 Reliability; and (9) Quality of Secondary Water Chemistry. Exhibit JAS-1
20 shows the FPL nuclear fleet performance based on the WANO index for the
21 last ten years (1997-2006). This exhibit demonstrates that FPL Group's
22 nuclear fleet outperformed the industry throughout most of this period. The
23 performance of FPL Group's nuclear fleet in 2005 was affected primarily by

1 issues at a single plant, PTN. PTN performance, as shown by the WANO
2 indicators, was affected by major component replacements, vendor
3 performance issues, and by the manual shutdown of both PTN units because
4 of Hurricane Wilma. FPL Group's actions to replace major components at
5 PTN will lead to long-term plant performance improvements and support the
6 long-term operation of the plant into its renewed license terms.

7
8 FPL Group's exemplary nuclear plant performance has been achieved while
9 maintaining excellent capacity factors (including refueling outages) at its
10 nuclear plants over the last several years. Moreover, FPL Group's nuclear
11 refueling outages are well planned and executed. Some of our refueling
12 outages have been the shortest achieved for similar units in the industry. Our
13 employees continuously critique our refueling outage performance, and
14 lessons learned are implemented across our nuclear fleet at the next refueling
15 outages to further improve our performance.

16 **Q. Please Describe the Performance of the Nuclear Plants Acquired by FPL**
17 **Energy.**

18 A. Since FPLE Seabrook's acquisition of Seabrook Station in 2002, that plant has
19 operated very well. From 2003-2006, the average capacity factor at Seabrook
20 Station, with FPLE Seabrook as the operator, was 92.4% as compared with
21 84.8% under the previous operator for the 1998-2002 time frame. Since the
22 2002 acquisition, FPLE Seabrook has completed an uprate that increased the
23 plant's capacity by approximately 6.9%. From an environmental standpoint,

1 Seabrook Station has received the highest rating from the New Hampshire
2 Department of Environmental Services (NHDES) in the last five periods it has
3 been evaluated. This inspection is typically performed annually and evaluates
4 Seabrook Station's ability to self-monitor and comply with the effluent limits
5 and compliance schedules in its NHDES Permit. The most recent inspection
6 by NHDES, conducted in October 2005, resulted in the top rating of "5" being
7 assigned to the Seabrook Station program.

8
9 Since FPL Group acquired Duane Arnold in 2006, it has operated at a 97.3%
10 capacity factor, which is significantly higher than the average annual capacity
11 factor of 92.8% during the 2000-2005 time frame.

12 **Q. How does the NRC rate FPL Group's nuclear safety record?**

13 A. The nuclear safety aspects of FPL Group's nuclear operations are
14 comprehensively regulated by the NRC. The NRC maintains and tracks a set
15 of performance indicators as objective measures of nuclear safety
16 performance. These indicators monitor performance in initiating events,
17 performance of safety systems, maintenance of fission product barrier
18 integrity, emergency preparedness, occupational and public radiation safety,
19 and physical protection. As shown in Exhibit JAS-2, all of FPL Group's units
20 are in the "green" band of all NRC Performance Indicators, indicating good
21 nuclear safety performance.

1 **Q. Please describe FPL Group and FPL Energy's experience in uprating its**
2 **nuclear units.**

3 A. In 2006, FPL Energy completed a successful uprate at Seabrook that increased
4 that plant's operating capacity by approximately 6.9%. In 2006, FPL Energy
5 completed a successful uprate at Duane Arnold that increased that plant's
6 operating capacity by approximately 2%. FPL Group also completed
7 successful uprates at PSL Units 1 and 2 in 1986 and at PTN Units 3 and 4 in
8 1996. This track record demonstrates the capability of FPL Group and FPL
9 Energy to increase the power output of its nuclear units in a safe, reliable, and
10 cost-effective manner.

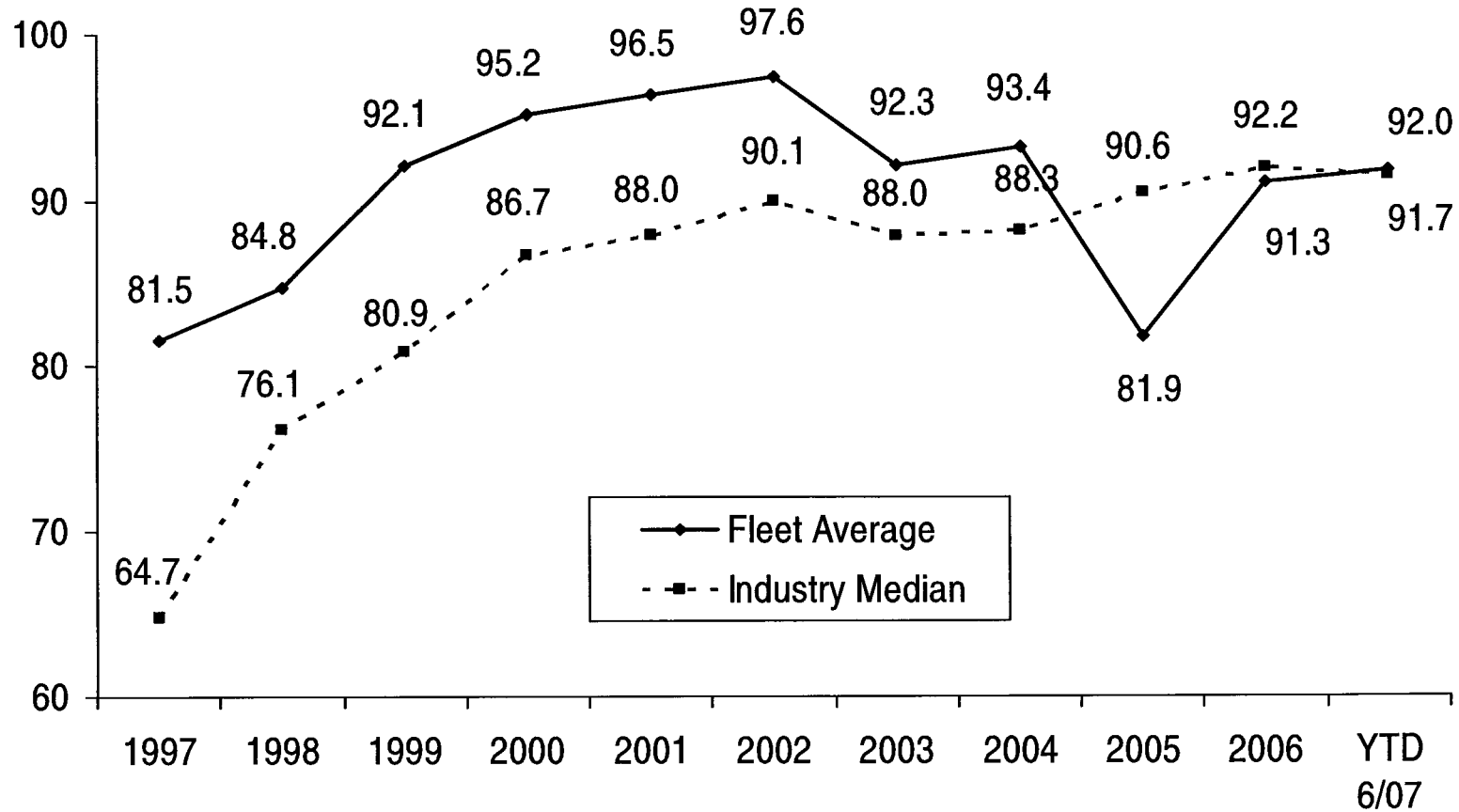
11 **Q. Does this conclude your direct testimony?**

12 A. Yes.

WANO Index – Fleet Performance

1997 – Year-to-Date 6/30/07

(Average of 4 sites)



Seabrook added to fleet in 2003; Duane Arnold added to fleet in 2006

NRC Performance Indicators

Initiating Events Cornerstone

Unplanned reactor scrams per 7000 critical hours (automatic and manual)

Turkey Point Unit 3	Turkey Point Unit 4	St. Lucie Unit 1	St. Lucie Unit 2	Seabrook Station	Duane Arnold
Green	Green	Green	Green	Green	Green

Unplanned reactor scrams with loss of normal heat removal

Green	Green	Green	Green	Green	Green
-------	-------	-------	-------	-------	-------

Unplanned Power Changes per 7000 critical hours

Green	Green	Green	Green	Green	Green
-------	-------	-------	-------	-------	-------

Mitigating Systems Cornerstone

Mitigating System Performance

Green	Green	Green	Green	Green	Green
-------	-------	-------	-------	-------	-------

Safety System Functional Failures

Green	Green	Green	Green	Green	Green
-------	-------	-------	-------	-------	-------

Barriers Cornerstone

RCS Activity

Green	Green	Green	Green	Green	Green
-------	-------	-------	-------	-------	-------

RCS Leakage

Green	Green	Green	Green	Green	Green
-------	-------	-------	-------	-------	-------

Emergency Preparedness Cornerstone

Emergency Response Organization (ERO) drill/exercise performance

Green	Green	Green	Green	Green	Green
-------	-------	-------	-------	-------	-------

ERO Drill Participation

Green	Green	Green	Green	Green	Green
-------	-------	-------	-------	-------	-------

Alert and Notification System Performance

Green	Green	Green	Green	Green	Green
-------	-------	-------	-------	-------	-------

Occupational Radiation Safety Cornerstone

Occupational Exposure Control Effectiveness

Green	Green	Green	Green	Green	Green
-------	-------	-------	-------	-------	-------

Public Radiation Safety Cornerstone

RETS/ODCM Radiological Effluent Occurrence

Green	Green	Green	Green	Green	Green
-------	-------	-------	-------	-------	-------

Physical Protection Cornerstone

Protected Area Security Equipment Performance Index

Green	Green	Green	Green	Green	Green
-------	-------	-------	-------	-------	-------

Personnel Screening Program Performance

Green	Green	Green	Green	Green	Green
-------	-------	-------	-------	-------	-------

FFD/Personnel Reliability Program Performance

Green	Green	Green	Green	Green	Green
-------	-------	-------	-------	-------	-------

Acceptable Performance Licensee Response Band

Green

Acceptable Performance Increased Regulatory Response Band

White

Acceptable Performance Required Regulatory Response Band

Yellow

Unacceptable Performance Plants not normally permitted to operate within this band

