

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

**In re: Nuclear Cost Recovery
Clause**

DOCKET NO. 090009-EI
Submitted for filing:
May 1, 2009

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**DIRECT TESTIMONY
OF JON FRANKE IN SUPPORT OF
ACTUAL/ESTIMATED AND PROJECTED COSTS**

**ON BEHALF OF
PROGRESS ENERGY FLORIDA**

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IN RE: NUCLEAR COST RECOVERY CLAUSE

BY PROGRESS ENERGY FLORIDA

FPSC DOCKET NO. 090009-EI

DIRECT TESTIMONY OF JON FRANKE

I. INTRODUCTION AND QUALIFICATIONS

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Q. Please state your name and business address.

A. My name is Jon Franke. My business address is 15760 W. Powerline St.,
Crystal River, FL 34442.

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

A. I am employed by Progress Energy Florida, Inc. ("PEF" or the
"Company") in the Nuclear Generation Group and serve as Director Site
Operations at Crystal River Unit 3 ("CR3"), PEF's nuclear plant.

Q. What are your job responsibilities?

A. As Director Site Operations I am responsible for the safe operation of the
nuclear generating station. The Plant General Manager, Engineering
Manager and Training sections report to me. Additionally, I have indirect
responsibilities in oversight of major project activities at the station.
Through my management team I have about 420 employees that perform

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1 the daily work required to operate the station and provide engineering and
2 training support to the station.

3
4 **Q. Please summarize your educational background and work experience.**

5 **A.** I have a Bachelor's degree in Mechanical Engineering from the United
6 States Naval Academy at Annapolis. I have a graduate degree in the
7 same field from the University of Maryland and a Masters of Business
8 Administration from the University of North Carolina at Wilmington.

9 I have over 20 years of experience in nuclear operations. I
10 received training by the US Navy as a nuclear officer and oversaw the
11 operation and maintenance of a nuclear aircraft carrier propulsion plant
12 during my service. Following my service in the Navy I was hired by
13 Carolina Power and Light and have been with the company through the
14 formation of Progress Energy. My early assignments involved
15 engineering and operations, including oversight of the daily operation of
16 the Brunswick nuclear plant as a Nuclear Regulatory Commission
17 ("NRC") licensed Senior Reactor Operator. I was the Engineering
18 Manager of that station for three years prior to assignment to Crystal River
19 as the Plant General Manager in 2002. Approximately two years ago I
20 was promoted to my current position.

21

1 variances greater than \$1 million between the 2009 expenditure
2 projections filed in Docket 080009, Schedule P-6 and Schedule AE-6.
3 Schedule AE-7 is a description of the contracts and work for the nuclear
4 technology selected. Schedule AE-8 is a list of the contracts executed in
5 excess of \$1.0 million that have been executed to date. Schedule AE-8A
6 reflects details pertaining to the contracts executed in excess of \$1.0
7 million.

8 I am also sponsoring the cost portions of Schedule P-6, as well as
9 Schedules P-6A, P-7, P-8, and P-8A, which are part of Exhibit No. __
10 (TGF-5), which provide similar details for the technology selected and
11 contracts as the AE schedules do. Finally, I am sponsoring the cost
12 portions of Schedule TOR-6, as well as Schedules TOR 6A and TOR-7
13 included as part of Exhibit No. __ (TGF-6) to Mr. Foster's testimony.

14 These schedules are true and accurate.

15
16 **Q. Please summarize your testimony.**

17 **A.** From January to March 2009, PEF has incurred reasonable and prudent
18 costs to complete work scheduled for the remaining two phases of the
19 project, which is currently on schedule. PEF incurred costs for
20 engineering and equipment procurement. These costs were reasonable and
21 prudent.

22 As demonstrated in my testimony and the NFRs filed as exhibits to
23 Mr. Foster's testimony, PEF took adequate steps to ensure that the costs it

1 incurred were reasonable and prudent. When selecting vendors, PEF
2 utilized a Request for Proposals (“RFP”), or competitive bidding process
3 where appropriate, and used reasonable business judgment to select sole-
4 source vendors when an RFP was not used. For all its contracts, PEF
5 negotiated as favorable contract terms as it could given market conditions
6 to provide reasonable cost certainty and appropriate risk-sharing.
7 Accordingly, the Commission should approve PEF’s costs incurred for
8 January to March 2009 as reasonable pursuant to the nuclear cost recovery
9 rule.

10 PEF has also provided reasonable projections for costs to be
11 incurred during the remainder of 2009 and all of 2010. These projected
12 costs were developed using the best available information to the Company
13 at this time. Thus the Commission should approve PEF’s projections as
14 reasonable.

15
16 **II. 2009 ACTUAL/ESTIMATED AND 2010 PROJECTED PERIODS**

17
18 **Q. Has the Company incurred construction costs for the CR3 Uprate**
19 **Project during 2009?**

20 **A.** Yes, the Company has incurred actual costs for January to March 2009, as
21 reflected on line 47 of Schedule AE-6.
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Q. Does the Company plan to incur costs for the CR3 Uprate Project during the remainder of 2009 and 2010?

A. Yes, PEF must incur costs to maintain the schedule for the CR3 Uprate project and to procure material and equipment and perform engineering and analytical support work to accomplish the power uprate work during the 2009 and 2011 CR3 refueling outages. The majority of the costs for the remainder of 2009 will be incurred in support of the work being done during the 2009 refueling outage.

Q. What types of costs does PEF project to incur for the CR3 Uprate project during 2009 and 2010?

A. As reflected in Schedule AE-6 of Mr. Foster's Exhibit No. __ (TGF-4), the total 2009 actual/estimated costs are broken down into five categories: License Application cost of \$ 16.2 million, Project Management cost of \$40.3 million, On-Site Construction Facilities cost of \$4.6 million, Power Block Engineering, Procurement, and related construction costs of \$60.3 million, and Non-Power Block Engineering, Procurement and related costs of \$4.7 million.

As reflected in Schedule P-6 of Mr. Foster's Exhibit No. __ (TGF-5), the 2010 projected costs are broken down into five categories: License Application cost of \$ 0.8 million, Project Management cost of \$11.3 million, On-Site Construction Facilities cost of \$0.1 million, Power Block Engineering, Procurement, and related construction costs of \$21.1 million,

1 and Non-Power Block Engineering, Procurement and related costs of
2 \$16.6 million.

3
4 **Q. What Licensing work was and will be done in 2009 and 2010 and why**
5 **does the Company need to incur the cost of that work?**

6 **A.** These costs include work needed to prepare and submit the NRC license
7 amendment in support of the uprate. The Company is working on the
8 NRC license application in 2009 and expects to receive approval from the
9 NRC by 2010. These costs are necessary for completion of the project,
10 because PEF cannot operate CR3 at the increased megawatt level without
11 receiving approval from the NRC.

12 PEF developed these License Application cost estimates on a
13 reasonable licensing and engineering basis, using the best available
14 information, consistent with utility industry and PEF practice. PEF also
15 used its engineering judgment and experience to determine the costs
16 needed to ensure timely submittal and approval of the NRC license
17 application. The 2009 and 2010 Licensing cost projections are, therefore,
18 reasonable.

19
20 **Q. What Project Management work was and will be done in 2009 and**
21 **2010 and why does the Company need to incur the cost of that work?**

22 **A.** These costs include the following Project Management activities: (1)
23 project administration, including project instructions, staffing, roles and

1 responsibilities, and interface with accounting, finance, and senior
2 management; (2) contract administration, including status and review of
3 project requisitions, purchase orders, and invoices, contract compliance,
4 and contract expense reviews; (3) project controls, including schedule
5 maintenance and milestones, cost estimation, tracking and reporting, risk
6 management, and work scope control; (4) project management, including
7 project plans, project governance and oversight, task plans, task
8 monitoring plans, lessons learned, and task item completions; (5) project
9 training, including the uprate project training program, training of
10 personnel in accordance with the training program, and maintaining
11 training records; and (6) CR3 Uprate licensing work management.

12 Each activity will be conducted under the Company's project
13 management and cost control policies and procedures that were described
14 in Steve Huntington's March 2, 2009 testimony. Such costs are necessary
15 to ensure that the scope of work is adequate to achieve the uprate project
16 objectives; that the engineering and construction labor, material, and
17 equipment provided by PEF or outside vendors for the project is available
18 when needed at a reasonable cost; and that the project schedule can be
19 maintained.

20 The current schedule calls for the CR3 Uprate to be completed
21 during the 2009 and 2011 CR3 refueling outages. Through the Project
22 Management activities that I have identified, the Company is on-schedule

1 to perform the CR3 Uprate project work as planned. These necessary CR3
2 Uprate project costs are reasonable and prudent.

3
4 **Q. What On-Site Construction Facilities work was and will be done in**
5 **2009 and 2010 and why does the Company need to incur the cost of**
6 **that work?**

7 **A.** These costs include the installation of warehouses and other facilities
8 necessary to accommodate the staff and craft laborers working at the
9 Crystal River site during the 2009 and 2011 refueling outages. There will
10 be over 3000 workers on-site during the 2009 outage and over 1500 during
11 the 2011 outage. These costs are necessary to provide buildings, parking,
12 sanitation, and work support facilities to support their work.

13 PEF developed these On-Site Construction Facilities cost estimates
14 on a reasonable engineering basis, using the best available information,
15 consistent with utility industry and PEF practice. Based on PEF's
16 experience with other construction projects, which involve similar types of
17 activities that are necessary before construction can commence, PEF
18 developed reasonable estimates for the On-Site Construction Facilities
19 costs for the CR3 Uprate project.

20
21 **Q. Please describe the total costs incurred for the Power Block**
22 **Engineering, Procurement and related construction cost items and**

1 **explain why the Company needed to incur or needs to incur them in**
2 **2009 and 2010.**

3 **A.** These costs include engineering and equipment procurement costs
4 associated with the CR3 refueling outage #16 outage work scope,
5 scheduled for the fourth quarter of 2009. That work scope includes two
6 low pressure turbine replacements, turbine generator electrical stator
7 rewind, turbine generator exciter replacement, four moisture separator
8 reheater replacements, two condensate heater replacements, two secondary
9 cooling heat exchanger replacements, two moisture separator reheater
10 shell side drain heat exchanger additions, turbine generator electrical
11 output bus duct cooling system modification, integrated control system
12 rescaling, plant process computer updates, and four turbine bypass valve
13 replacements. This work scope is necessary to achieve the power uprate
14 objectives of the CR3 Uprate project and therefore the costs of this work
15 scope are reasonable and prudent.

16 PEF projected its 2009 and 2010 Power Block Engineering,
17 Procurement, and related construction item costs using actual contract
18 figures and project schedule milestones. For example, to maintain the
19 schedule for the planned outage in 2009, PEF must order and make
20 payments on certain equipment during a particular timeframe. These
21 payment amounts and the times for payment are set forth in various
22 contracts, and these payment terms are used for the projections. PEF has,
23 therefore, developed its construction cost estimates using the best

1 available information because the parameters of our cost estimates,
2 material and labor pricing, whether fixed or firm with industry recognized
3 escalations, and the schedule for payments, have been established by
4 contract. The 2009 and 2010 Power Block Engineering, Procurement, and
5 related construction item cost projections are, therefore, reasonable.

6
7 **Q. Are there any other costs included in the Company's projections for**
8 **2009 and 2010 for the CR3 Uprate project?**

9 **A.** Yes, PEF projects that it will incur approximately \$36.9 million, gross of
10 joint owner billing and exclusive of carrying costs, to address the Point of
11 Discharge ("POD") issue. A new cooling tower will be constructed at the
12 Crystal River Energy Complex to eliminate the additional heat from the
13 uprate project in the discharge canal. The Company has submitted, and
14 the Florida Department of Environmental Protection ("FDEP") has
15 approved, the Company's application to construct this cooling tower. The
16 tower will be placed into service before the completion of the Uprate work
17 in the 2011 planned refueling outage.

18 The POD costs are part of the Project Management and Non-Power
19 Block Engineering, Procurement, and related construction cost categories
20 on Line 40 and Line 46 of Schedules AE-6 and P-6 of Exhibit Nos. __
21 (TGF-4) and (TGF-5) respectively.

1 **Q. Please describe the projected costs being placed in-service for the CR3**
2 **Uprate project in 2009.**

3 **A.** During the CR3 refueling outage #16 in 2009 approximately \$185.3
4 million on a system basis or \$159.5 million of assets on a retail basis will
5 be placed into service as reflected on Line 2 of Schedule AE – 3 of Exhibit
6 No. __ (TGF-4). These costs are primarily associated with work to
7 complete 2 low pressure turbine replacements, turbine generator electrical
8 stator rewind, turbine generator exciter replacement, moisture separator
9 reheater replacements, 2 condensate heater replacements, 2 secondary
10 cooling heat exchanger replacements, and 4 turbine bypass valve
11 replacements.

12
13 **Q. Are the costs projected for the CR3 Uprate project in 2009 and 2010**
14 **separate and apart from what the Company must incur to maintain**
15 **the CR3 unit for the remainder of the unit's life?**

16 **A.** Yes, they are. For the reasons provided in Mr. Huntington's March 2,
17 2009 testimony, which I have adopted, all of the costs for the CR3 Uprate
18 project, including those for 2009 and 2010, are separate and apart from
19 those costs which the Company would have incurred without the project.
20

1 **III. TRUE UP TO ORIGINAL COST FILING FOR 2009**

2
3 **Q. Has the Company filed schedules to provide information truing up the**
4 **original estimates to the actual costs incurred?**

5 **A.** Yes, these schedules are provided as an Exhibit to Mr. Foster's testimony.

6
7 **Q. What is the current total project estimate, compared to the original**
8 **estimate?**

9 **A.** As reflected on Schedule TOR-7, the total current project estimate,
10 exclusive of AFUDC and including fully loaded costs, is \$362.4 million.
11 The original estimate provided in the need determination proceeding was
12 \$381 million, which did not reflect the full "Financial View" or fully
13 loaded costs but instead reflected the estimated direct costs. The original
14 estimate inclusive of the indirect costs is \$439.3 million as presented in
15 Scheduled TOR-7. As I explained above, we now have contracts in place
16 for the CR3 Uprate project work, and our current cost estimates are based
17 on these contract costs and estimates of supporting project management
18 and other work by PEF. The current total project estimate is, therefore,
19 based on the best available information at the time of this filing.

20 The cost estimates for the CR3 Uprate project, when compared on
21 the same cost basis, have decreased. The current estimate reasonably
22 reflects the cost of the Uprate project based on costs that are better defined
23 under circumstances where the Company is closer to completing the

1 project and simply has better cost information under its contracts for its
2 projections.

3 Another change to the estimate is the elimination of the
4 transmission costs that were included in the original estimate. The
5 Company completed its transmission study related to the CR3 Uprate
6 project after its initial cost estimate was prepared. As a result of that
7 study, the Company determined that no additional transmission upgrades
8 and related costs were necessary as a result of the CR3 Uprate.

9
10 **VI. RULE 25-6.0423(5)(c)5: LONG-TERM FEASIBILITY OF**
11 **COMPLETING CR3 UPRATE**

12
13 **Q. Has the Company conducted an analysis to determine the long-term**
14 **feasibility of completing the CR3 Uprate project?**

15 **A.** Yes. PEF, as part of its regular management of the CR3 Uprate project,
16 completed an updated Integrated Project Plan (“IPP”) on March 2, 2009.

17
18 **Q. Is the CR3 Uprate project completion feasible?**

19 **A.** Yes, as reflected in the updated IPP. The IPP provides an update of the
20 status of the project, including the completion of the MUR phase during
21 the 2007 outage and the continued progress on preparing for the 2009 and
22 2011 outage. It outlines the major work planned, and sets forth the
23 planned schedule and project milestones necessary for timely completion.

1 Updated cost estimates are provided in the IPP, for both capital and
2 operating and maintenance (“O&M”) costs. The total current cost
3 estimate remains bounded by the initial Business Analysis Package for the
4 project, issued November 10, 2006.

5 The IPP also includes potential project risks, and strategies for
6 managing such risks. The Company uses a detailed risk register to track
7 and manage these risks to protect project viability. At this time, there is
8 no indication of any risks that would affect the project’s feasibility. As
9 indicated in the IPP, PEF has an extensive risk management program in
10 place that allows us to readily identify any potential risks quickly and
11 implement mitigation actions to reduce those risks.

12 Also included in the IPP is an update regarding the necessary
13 regulatory approvals for the project. Specifically, the FDEP issued an
14 amended Conditions of Certification for Crystal River Units 3, 4, and 5 in
15 August 2008. These amended Conditions recognize PEF’s intention to
16 construct a new cooling tower. The other required regulatory approval is
17 from the NRC for the Extended Power Uprate. PEF plans to file its
18 license amendment request for the EPU in the Fall of 2009. Obtaining the
19 regulatory approval from the NRC remains feasible and on schedule.

20 The recommendation of the IPP is that the Company continue with
21 the remaining work for the CR3 Uprate project, to be completed during
22 the 2009 and 2011 refueling outages. As set forth in the IPP, the project
23 will result in economic benefits to PEF’s customers, in terms of fuel

1 savings, and will provide additional clean energy at low cost to PEF
2 consumers. The implementation of the CR3 Uprate project is an important
3 element of the Progress Energy Balanced Solution. The IPP, which is a
4 confidential document, has been produced in discovery and begins at
5 Bates number 09NC-OPCPOD1-4-000001.

6
7 **Q. Is the Company aware of any major issues with respect to the CR3**
8 **Uprate?**

9 **A.** As part of the Company's risk management program, the Company
10 became aware of certain issues that arose at the DC Cook plant in
11 Michigan. Specifically, the DC Cook plant contracted with Siemens for
12 low pressure turbines with a similar design for high efficiency rotors as
13 those that PEF is planning to use for the CR3 Uprate. About two years
14 after modifying the rotors and then installing the Siemens turbine, the DC
15 Cook plant experienced problems that resulted in a forced outage and
16 repairs to the turbines. PEF has been and is continuing to track the DC
17 Cook experience and is evaluating the differences in the CR3 planned low
18 pressure turbine design and expected plant response. The DC Cook issue
19 was included in the presentation to the Senior Management Committee for
20 the approval of the IPP. Once the technical issues are fully understood
21 and reviewed, PEF will finalize its decision concerning which low
22 pressure turbine to install.

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Q. Does the identification of the DC Cook issue affect PEF's assessment of the CR3 Uprate's feasibility?

A. No. As explained above, the DC Cook issue concerns the type of rotors that will be used on the low pressure turbines, which are only a part of the Uprate project. Should a decision be made to install a different design for the low pressure turbine modification, that would delay a small part of the uprate and might change the total pay back for the overall project, but not in a significant manner. Regardless of the final decision, the CR3 Uprate remains feasible and the Company remains committed to the CR3 Uprate project.

Q. Does this conclude your testimony?

A. Yes, it does.