

**BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION**

**In re: Nuclear Cost Recovery  
Clause**

**DOCKET NO. 090009  
Submitted for filing:  
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**DIRECT TESTIMONY  
OF STEVE HUNTINGTON**

**ON BEHALF OF  
PROGRESS ENERGY FLORIDA**

**DOCUMENT NUMBER-DATE**

**01644 MAR-20**

**FPSC-COMMISSION CLERK**

**IN RE: NUCLEAR COST RECOVERY CLAUSE**

**BY PROGRESS ENERGY FLORIDA**

**FPSC DOCKET NO. 090009**

**DIRECT TESTIMONY OF STEVE HUNTINGTON**

**I. INTRODUCTION AND QUALIFICATIONS**

1  
2 **Q. Please state your name and business address.**

3 **A.** My name is Steve Huntington. My business address is Crystal River  
4 Energy Complex, Site Administration 2C, 15760 West Power Line Street,  
5 Crystal River, Florida 34428.  
6

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

8 **A.** I am employed by Progress Energy Florida ("PEF" or the "Company") in  
9 the capacity of General Manager – Nuclear Projects.  
10

11 **Q. What are your responsibilities as the General Manager - Nuclear**  
12 **Projects?**

13 **A.** As General Manager – Nuclear Projects, I am responsible for the  
14 management and oversight of all large, capital nuclear projects for  
15 Progress Energy, including the Uprate Project at Crystal River Unit 3  
16 ("CR3"), PEF's nuclear plant.  
17

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1 **Q. Please summarize your educational background and work experience.**

2 **A.** I have a Bachelor of Science in Industrial Engineering and Technology  
3 degree from Southern Illinois University. I have completed executive  
4 leadership and alliance management courses at the University of Virginia  
5 Darden Graduate School of Business. I have over 32 years in outage  
6 management, maintenance and quality management positions for utility  
7 and construction companies in the commercial nuclear industry. Prior to  
8 my employment with the Company, I served as VP of New Plant  
9 Commercial Operations for AREVA NP, where I was responsible for  
10 guiding the development of the US Evolutionary Power Reactor business  
11 development activities, contracts organization and communications group.  
12 I have held various other positions in the commercial nuclear power  
13 market.

14  
15 **II. PURPOSE AND SUMMARY OF TESTIMONY**

16 **Q. What is the purpose of your direct testimony?**

17 **A.** The purpose of my direct testimony is to support the Company's request  
18 for cost recovery pursuant to the nuclear cost recovery rule for certain  
19 costs incurred in 2008 for the replacement and modification of equipment  
20 at CR3 to support an increase in reactor power from the nuclear plant. My  
21 testimony also supports the Company's request for a prudence  
22 determination of the costs incurred for the project in 2008.

23 Specifically, I will describe the construction costs that have been  
24 incurred, for which PEF is seeking recovery of the carrying costs. I will

1 explain why those construction costs were reasonable and necessary to  
2 accomplish the uprate. My testimony further supports the prudence of  
3 those costs by describing the process by which vendors and technology  
4 were selected. I will also provide testimony regarding PEF's project  
5 management policies and procedures that are designed to manage project  
6 costs and maintain the project schedule and explain why they are  
7 reasonable and prudent.  
8

9 **Q. Do you have any exhibits to your testimony?**

10 **A.** Yes, I am sponsoring one exhibit, Exhibit No. \_\_ (SH-1), which is a  
11 summary of the major modifications of the CR3 Uprate project. I am also  
12 sponsoring a portion of Schedule T-6, T-6B, and Appendix C, as well as  
13 Schedules T-6A and T-7 through T-8B of the Nuclear Filing Requirements  
14 ("NFRs"), which are included as part of the exhibit to Will Garrett's  
15 testimony. Schedule T-6 and Appendix C reflect the construction  
16 expenditures for the project by category and T-6B reflects explanations for  
17 the significant variances between these expenditures and previously filed  
18 projections. T-6A reflects descriptions of the major cost categories of the  
19 expenditures. Schedule T-7 is a description of the contracts and work for  
20 the nuclear technology selected. Schedule T-8 is a list of the contracts  
21 executed in excess of \$1.0 million. Schedule T-8A reflects details  
22 pertaining to the contracts executed in excess of \$1.0 million. Schedule T-  
23 8B reflects contracts executed in excess of \$200,000, yet less than \$1.0  
24 million.

1 All of these exhibits and schedules are true and accurate.  
2

3 **Q. Please summarize your testimony.**

4 **A.** The CR3 Uprate Project is being completed in three phases and will result  
5 in the Company generating an additional 180 MWe of efficient nuclear  
6 power by 2011. The Company successfully completed the first phase of  
7 the project during the 2007 refueling outage, and it was brought online in  
8 January 2008. During 2008, PEF incurred reasonable and prudent costs to  
9 complete all three phases of the project. The majority of the costs PEF  
10 incurred in 2008 were for the remaining two phases, scheduled for the  
11 2009 and 2011 refueling outages, because long lead-times to secure  
12 contracts and equipment for that work is required. PEF also finalized the  
13 scoping work for the 2009 outage, and completed engineering design for  
14 the project. The project is on schedule and on budget. These costs are  
15 appropriate for recovery pursuant to the nuclear cost recovery rule.

16 As demonstrated in my testimony and the NFRs filed as exhibits to  
17 Mr. Garrett's testimony, PEF took adequate steps to ensure that the costs it  
18 incurred were reasonable and prudent. When selecting vendors, PEF  
19 utilized a Request for Proposals ("RFP"), or competitive bidding, process  
20 where appropriate, and used reasonable business judgment to select sole-  
21 source vendors when an RFP was not used. For all its contracts, PEF  
22 negotiated as favorable contract terms as it could given market conditions  
23 to provide reasonable cost certainty and appropriate risk-sharing.

1 Accordingly, the Commission should approve PEF's costs incurred for  
2 2008 as reasonable and prudent pursuant to the nuclear cost recovery rule.  
3

4 **III. DESCRIPTION AND STATUS OF CR3 UPRATE PROJECT**

5 **Q. Please explain when and how the CR3 Uprate project will be**  
6 **accomplished.**

7 **A.** The CR3 power uprate project is planned for completion in three  
8 scheduled refueling outages for CR3 in 2007, 2009 and 2011. By  
9 completing this work during the times when CR3 will already be offline,  
10 customers receive the benefits of the CR3 Uprate Project without incurring  
11 replacement energy costs.

12 Phase 1, the MUR, was installed during the 2007 refueling outage  
13 and went on-line on January 31, 2008. The MUR is a series of  
14 engineering analyses to measure the "secondary heat balance" with  
15 improved accuracy through modifications to plant instrumentation and  
16 associated calculations. The improved accuracy in measuring the  
17 secondary heat balance allows the rated thermal power to be increased by  
18 41 thermal megawatts ("MWt") and plant electrical generation to increase  
19 by approximately 12 megawatts electric ("MWe").

20 Phase 2 of this project is a series of improvements to the efficiency  
21 of the secondary plant also known as the Balance of Plant ("BOP"). The  
22 Company currently anticipates, for example, that all or at least part of the  
23 low pressure turbine and electrical generator replacement can be  
24 completed during the BOP phase. The BOP phase is scheduled

1 concurrently with the steam generator replacement during the 2009  
2 refueling outage. Other modifications and replacements will be evaluated  
3 for inclusion in the 2009 refueling outage if the outage is not extended,  
4 appropriate resources are available to support the changes, and the impact  
5 of further modifications or replacements for the power uprate project on  
6 the duration of the scheduled 2011 refueling outage can be minimized.

7 The changes during the BOP phase do not increase the licensed  
8 output of the nuclear reactor but they will improve the efficient use of that  
9 output to produce a higher electrical output. The estimated increase in  
10 output is 28 MWe from the BOP phase.

11 The full power uprate is scheduled for the 2011 refueling outage,  
12 when the remaining work necessary to provide the full 180 MWe power  
13 uprate, called the Extended Power Uprate ("EPU") phase, will be  
14 completed. The BOP phase improvements will be sized to support the  
15 EPU. The EPU maximizes the output of the reactor and the BOP to their  
16 ultimate capacity.

17 The remaining two phases of the CR3 uprate project are on  
18 schedule to come online during the 2009 and 2011 outages.

19  
20 **Q. Will the CR3 uprate project require changes to other units at the**  
21 **Crystal River site?**

22 **A.** All changes necessary to generate the full power uprate are internal to the  
23 CR3 power block and no changes to the Company's current plant siting  
24 are required. However, modifications to address Point of Discharge

1 ("POD") issues to accommodate the full 180 MWe power uprate will be  
2 necessary to the complex outside of the CR3 power block and protected  
3 area.

4  
5 **Q. What changes are anticipated to address the Point of Discharge**  
6 **issues?**

7 **A.** The power uprate from the project will generate additional heat and steam,  
8 thereby increasing the temperature of the cooling water for the CR3 unit.  
9 This additional heat will likely cause the Company to exceed the thermal  
10 permit requirements for the cooling water discharge temperature. The  
11 conceptual design phase has been completed and PEF has made a decision  
12 on how to mitigate the additional heat rejected into the discharge canal due  
13 to the EPU. A mechanical draft circular cooling tower capable of  
14 removing 2.33 B BTU/hour, with a flow rate of 320,000 gpm, & 79<sup>0</sup> F wet  
15 bulb temperature, will be constructed and put into operation on the south  
16 bank of the discharge canal. The designed capacity of the new cooling  
17 tower compensates for both removal of the leased modular cooling towers  
18 and mitigation of the increased heat rejected to the discharge canal due to  
19 the EPU. This approach was determined to be the most cost effective  
20 solution for both concerns.

21  
22 **Q. What is the current status of the CR3 Uprate project in terms of**  
23 **completion?**

1           A.       Phase 1, also known as the MUR phase, was successfully completed  
2                    during the 2007 scheduled outage. Concurrently with the MUR phase  
3                    work, we have been securing contracts, making plans, and incurring costs  
4                    for Phases 2 and 3. The project thus far is progressing as expected, and  
5                    we expect no problems with completing them in the expected timeframes.  
6                    The project is on schedule and on budget.

7  
8           **Q.       How did PEF choose the vendors with which it contracted during the**  
9                    **2008 timeframe?**

10          A.       PEF employed a competitive bidding process to choose the vendors with  
11                    which it contracted in 2008 for the various projects associated with the  
12                    CR3 Uprate Project. PEF issued a Request for Proposal (“RFP”),  
13                    evaluated the RFP responses based on a variety of factors (including price,  
14                    dependability of the vendor, technical considerations, and the like), and  
15                    chose the vendor that provided the best value for the price.

16                    A more detailed description of the technology chosen for the CR3  
17                    Uprate Project is contained in Schedule T-7, which is attached as part of  
18                    an exhibit to Will Garrett’s testimony. Also, a detailed description of the  
19                    contracts executed in excess of \$200,000, including the dollar value and  
20                    term of the contract, the method of vendor selection, the identity and  
21                    affiliation of the vendor, and current status of the contract, is contained in  
22                    Schedules T-8 through T-8B, included in the exhibit to Mr. Garrett’s  
23                    testimony.

24

1           **IV.           COSTS INCURRED IN 2008 FOR CR3 UPRATE PROJECT**

2           **Q.           Has the Company incurred costs for the CR3 Uprate Project in 2008?**

3           **A.**       Yes, PEF incurred costs related to all three phases of the CR3 Uprate  
4           Project. The total capital expenditures for 2008, gross of joint owner  
5           billing and exclusive of carrying cost, were \$65,137,303. Specifically,  
6           PEF incurred \$7,731,640 of Project Management costs, \$56,955,136 of  
7           Power Block Engineering and Procurement costs, and \$450,527 of Non-  
8           Power Block Engineering and Procurement costs.

9  
10          **Q.           Please describe the total Project Management costs incurred and**  
11          **explain why the Company incurred them.**

12          **A.**       The Company's Project Management costs include the following Project  
13          Management activities: (1) project administration, including project  
14          instructions, staffing, roles and responsibilities, and interface with  
15          accounting, finance, and senior management; (2) contract administration,  
16          including status and review of project requisitions, purchase orders, and  
17          invoices, contract compliance, and contract expense reviews; (3) project  
18          controls, including schedule maintenance and milestones, cost estimation,  
19          tracking and reporting, risk management, and work scope control; (4)  
20          project management, including project plans, project governance and  
21          oversight, task plans, task monitoring plans, lessons learned, and task item  
22          completions; (5) project training, including the uprate project training  
23          program, training of personnel in accordance with the training program,  
24          and maintaining training records; and (6) CR3 Uprate licensing work.

1 Specifically, the Component Engineer group completed and published the  
2 CR3 uprate vendor oversight plans and schedules for the outage  
3 manufacturing cycle and initiated the vendor surveillance actions at the  
4 vendor facilities.

5 Each activity was conducted under the Company's project  
6 management and cost control policies and procedures that I describe in my  
7 testimony below. Such costs are necessary to ensure that the scope of  
8 work is adequate to achieve the uprate project objectives, that the  
9 engineering and construction labor, material, and equipment, provided by  
10 PEF or outside vendors for the project, is available when needed at a  
11 reasonable cost, and that the project schedule can be maintained.

12 The current schedule calls for the CR3 Uprate to be completed  
13 during the 2009 and 2011 CR3 refueling outages. Through the Project  
14 Management activities that I have identified, the Company is on-schedule  
15 and on-budget to perform the CR3 Uprate project work as planned. These  
16 necessary CR3 Uprate project costs are reasonable and prudent.

17  
18 **Q. Please describe the total costs incurred for the Power Block**  
19 **Engineering, Procurement and related construction cost items and**  
20 **explain why the Company incurred them.**

21 **A.** Most of the costs incurred in this category in 2008 were for the completion  
22 of the engineering design change packages associated with the equipment  
23 scheduled to be replaced in 2009. In addition, during 2008 the initial  
24 detailed task plans associated with the 2009 refueling outage work scope

1 were completed. The Company also incurred further costs for payments  
2 of long-lead items for equipment needed in the 2009 outage. The work  
3 scope for the 2009 outage includes two low pressure turbine replacements,  
4 turbine generator electrical stator rewind, turbine generator exciter  
5 replacement, four moisture separator reheater replacements, two  
6 condensate heater replacements, two secondary cooling heat exchanger  
7 replacements, two moisture separator reheater shell side drain heat  
8 exchanger additions, turbine generator electrical output bus duct cooling  
9 system modification, integrated control system rescaling, plant process  
10 computer updates, and four turbine bypass valve replacements. We have  
11 also been performing conceptual and detailed design and licensing  
12 activities for the 2011 outage work.

13 PEF's 2008 Power Block Engineering and Procurement costs were  
14 necessary for the timely completion of the CR3 Uprate during the 2009  
15 and 2011 refueling outages. These costs were prudently incurred.

16  
17 **Q. Please describe the total costs incurred for the Non-Power Block**  
18 **Engineering, Procurement and related construction cost items and**  
19 **explain why the Company incurred them.**

20 **A.** These costs are associated with the studies the Company completed on the  
21 effects of the increased heat at the POD. These costs are necessary for the  
22 project because PEF will not be able to complete the full uprate without  
23 analyzing and accommodating the higher water temperature in the  
24 discharge canal. These costs were prudently incurred.

1 **Q. How did actual capital expenditures for January 2008 through**  
2 **December 2008 compare to PEF's estimated/actual projection for**  
3 **2008?**

4 **A.** PEF's actual capital expenditures in 2008 were less than PEF projected.  
5 Project Management capital expenditures were \$7,731,640 which was  
6 \$1,669,075 under the estimated/actual projection and Power Block  
7 Engineering and Procurement capital expenditures were \$56,955,136  
8 which was \$1,229,920 under the estimated/actual projection. These  
9 variances were primarily due to effective implementation of our major  
10 project management procedures. PEF incurred lower internal labor costs  
11 than projected as the scheduled work required fewer working hours than  
12 originally planned. Also, \$450,527 that was projected as Power Block  
13 Engineering has been re-classified to the Non-Power Block Engineering  
14 category because the costs were associated with the POD solution.

15  
16 **V. ALL COSTS INCLUDED FOR THE CR3 UPRATE ARE**  
17 **"SEPARATE AND APART FROM" THOSE COSTS NECESSARY**  
18 **TO RELIABLY OPERATE CR3 DURING ITS REMAINING LIFE**

19 **Q. Are the CR3 Uprate project costs included in the NCRC docket for**  
20 **recovery separate and apart from those that the Company would have**  
21 **incurred to operate CR3 during the extended life of the plant?**

22 **A.** Yes, PEF has only included for recovery in this proceeding those costs  
23 that were incurred solely for the CR3 Uprate. In other words, the

1 Company only included uprate costs that would not have been incurred  
2 but for the CR3 Uprate Project.

3  
4 **Q. How did the Company determine the scope of the CR3 Uprate and the**  
5 **necessary costs to be incurred to complete the project?**

6 **A.** PEF completed several scoping or feasibility studies to determine the  
7 exact nature of the changes necessary to implement the CR3 Uprate  
8 project. PEF contracted with AREVA to provide this detailed technical  
9 analysis. In that analysis, AREVA studied the effect of the additional heat  
10 and pressure to determine which components would need to be replaced or  
11 upgraded to accommodate the uprate. A summary of the major  
12 components and modifications necessary to complete the CR3 Uprate  
13 Project is included in my Exhibit No. \_\_ (SH-1). This summary table also  
14 explains the reason for each modification or new component.

15  
16 **Q. How did PEF determine that no CR3 equipment would have to be**  
17 **replaced to continue to operate the plant for an additional twenty**  
18 **years?**

19 **A.** PEF made this determination after conducting a detailed License Renewal  
20 aging review of the plant's in-scope systems, structures, and components  
21 ("SSCs"). It should be noted that the Company had already decided to  
22 replace the steam generators prior to the beginning of the CR3 License  
23 Renewal project and the generators will be replaced prior to approval of  
24 the renewed license. The generators are scheduled for replacement during

1 the 2009 refueling outage, and the Company has not included any costs for  
2 the steam generator replacement in this proceeding.

3  
4 **Q. Please explain the process PEF utilized to identify that no equipment**  
5 **needed to be replaced to ensure reliable and efficient operation during**  
6 **an additional twenty years of plant operation following license**  
7 **renewal.**

8 **A.** CR3 was originally licensed for forty years. To extend the life of CR3 for  
9 another twenty years, the NRC requires that PEF, as the owner, submit a  
10 License Renewal Application. The requirements of a License Renewal  
11 Application are set forth in 10 CFR Part 54. The first part of the  
12 application process is to conduct a License Renewal technical evaluation,  
13 which is intended to evaluate whether the unit can safely and reliably  
14 operate for a full 60-year operating term. The technical evaluation for  
15 CR3 took approximately three years to complete.

16 The first step in the technical evaluation is to determine which of  
17 the plant's SSCs are within the scope of License Renewal. There are  
18 certain criteria set forth in 10 CFR § 54.4, and if an SSC meets those  
19 criteria, it will be considered within the scope of License Renewal.  
20 Basically, SSCs that are safety related, non-safety related but whose  
21 failure could prevent the accomplishment of a safety related function, and  
22 those that support any of the five regulated events - fire protection (10  
23 CFR § 50.48), environmental qualification (10 CFR § 50.49), pressurized  
24 thermal shock (10 CFR § 50.61), anticipated transients without scram (10

1 CFR § 50.62), and station blackout (10 CFR § 50.63) - will be considered  
2 within the License Renewal scope.

3 These SSCs are further screened to identify those that are long-  
4 lived and passive to determine the complete population of SSCs that  
5 require aging management review. Long-lived components are those  
6 components that are expected to remain functional for at least the first 40  
7 years of plant life. Passive components are those that perform their  
8 function without moving parts and without a change in configuration or  
9 properties. These include such components as the reactor vessel, the  
10 steam generators, piping, component supports, valve bodies, cables, heat  
11 exchangers, structures, etc. In essence, the entire nuclear plant is divided  
12 into two categories: SSCs that are included in the technical evaluation and  
13 SSCs that are not included in the evaluation. A more detailed discussion  
14 of the methodology for scoping the CR3 License Renewal technical  
15 evaluation can be found in Section 2.1 of PEF's License Renewal  
16 Application, which is available on the NRC website at:  
17 <http://www.nrc.gov/reactors/operating/licensing/renewal/applications/crystal/crystal-lra.pdf>.  
18

19 A detailed description of the screening methodology can also be  
20 found in Section 2.1 of the Company's License Renewal Application,  
21 available at the NRC website noted above.  
22

23 **Q. What is the next part of the technical evaluation?**

1           **A.**       The next step of the technical evaluation is the aging review and  
2                   identification of aging management programs. This step determines what  
3                   the aging effects are for each in-scope SSC and identifies which aging  
4                   management program is required, if any, to assure that the SSC will  
5                   operate through the end of the renewed license term. The Company also  
6                   reviews time-limited aging analyses (“TLAA”) to assure that evaluations  
7                   previously performed to establish the operating life of an SSC will still be  
8                   valid for the period of extended operation. TLAAs are evaluations that  
9                   establish a life expectancy of an SSC in terms of years, cycles, or some  
10                  other metric. The review of TLAAs is performed to assure that any  
11                  evaluation that determined an SSC had a life of less than 60 years would  
12                  be addressed. The aging management and TLAA reviews would identify  
13                  any SSCs that had a life of less than 60 years. If any SSC was found with  
14                  a life of less than 60 years, PEF would be required to replace it, refurbish  
15                  it, or re-analyze it.

16  
17           **Q.**       **What were the results of the aging analysis?**

18           **A.**       In summary, after the detailed review of each in-scope SSC, PEF  
19                   determined that no SSC required replacement due to the extended  
20                   operating term that had not previously been identified. This finding is  
21                   consistent for most plants that have gone through the license renewal  
22                   process. As stated above, PEF had already identified and made plans to  
23                   replace the steam generators. No new capital replacements were  
24                   identified. Although no replacements are needed, PEF must implement

1 certain aging management monitoring programs. These aging  
2 management monitoring programs typically involve inspections of SSCs  
3 to verify that no significant aging is taking place. A more detailed  
4 description of the results of the aging analysis can be found in Section 3.0  
5 of the Company License Renewal Application on the NRC website.  
6 Aging management programs may be found in Appendix B of the License  
7 Renewal Application.

8  
9 **Q. Did the Company have to replace its step-up generator transformers**  
10 **as part of its License Renewal?**

11 **A.** No, it did not. Through its routine maintenance program, PEF had already  
12 identified the need to replace its step-up generator transformers. This  
13 project was completed in 2007, and none of the costs for this project is  
14 included in the scope of the CR3 Uprate Project.

15  
16 **VI. PROJECT MANAGEMENT AND COST CONTROL OVERSIGHT**

17 **Q. Has the Company implemented project management and cost control**  
18 **oversight mechanisms for the CR3 Uprate project?**

19 **A.** Yes. The Company is utilizing several policies and procedures to ensure  
20 that the costs for the CR3 Uprate project are reasonably and prudently  
21 incurred and that the project remains on schedule. The CR3 Uprate  
22 project is being undertaken by the Company consistent with its Project  
23 Management Manual, which has been in place at the Company and used to  
24 manage capital projects since early in this decade.

1                    Additionally, because the CR3 Uprate project is a major capital  
2 project for the Company, the project must comply with the Company's  
3 policies and procedures in its Major Capital Projects – Integrated Project  
4 Plan that was issued in January 2008. The CR3 Uprate project was also  
5 approved in accordance with the Company's Project Evaluation and  
6 Authorization Process. This evaluation and project authorization process  
7 has been in place at the Company for many years. Finally, the CR3  
8 Uprate project is subject to the Progress Energy Project Governance  
9 Policy, which also has been in place for many years.

10  
11        **Q.        Can you describe some of the project management and cost control**  
12        **policies or procedures in the Company's project management**  
13        **documents that are being used to manage the CR3 Uprate project and**  
14        **control project costs?**

15        **A.        Yes. PEF has several control mechanisms in place to manage the CR3**  
16        **Uprate project and the costs incurred on the project. By utilizing these**  
17        **policies, PEF is able to effectively keep the CR3 Uprate project on**  
18        **schedule and ensure that costs incurred are reasonable and prudent.**

19                    For example, the CR3 Uprate project management team conducts a  
20 wide variety of regular, internal meetings. These regular meetings allow  
21 the project management team to monitor the progress of the project, its  
22 costs, and to incorporate the collective knowledge and experience of the  
23 team in addressing the scope of the work, the cost of the work,  
24 engineering and construction implementation of the work items, and

1 schedule performance. During these meetings PEF's project management  
2 team reviews team member roles and responsibilities, tasks are identified,  
3 and the necessary steps to implement the tasks, including incorporating  
4 lessons learned, are planned. Any staffing issues are discussed and  
5 addressed. Procurement under contracts, through the status of  
6 requisitions, purchase orders, and invoices for necessary engineering and  
7 material, is addressed as well as the status of administration of the  
8 contracts with outside vendors. Project training updates are provided.  
9 The status of work on the uprate licensing is regularly discussed. Risk  
10 management is discussed and addressed. Finally, project management  
11 expectations are communicated and implemented by the CR3 Uprate  
12 project management team.

13 PEF's CR3 Uprate project managers also meet regularly with  
14 outside contract vendors working on the project to review the contract  
15 scope of work, engineering and construction implementation of that work  
16 scope, and the schedule for the work under the vendor contracts. Project  
17 requisitions, purchase orders, and invoices are discussed. Project  
18 management expectations are communicated to the outside vendors. By  
19 maintaining supervision over the project, the project schedule, and the  
20 work performed by outside vendors, PEF is able to anticipate and manage  
21 scope changes, if any, and project expenditures.

22 There are other regular project reviews too. CR3 Uprate project  
23 managers prepare Project Cost Reports that include all contract, labor,  
24 equipment, material and other project cost transactions recorded to the

1 CR3 Uprate project. Monthly Department Cost Reports reflecting  
2 department capital expenditures for the CR3 Uprate project are also  
3 prepared by the department managers and/or financial analysts. These  
4 reports are regularly reviewed by the CR3 Uprate project management  
5 team.

6 PEF also has monthly PEF Finance Committee meetings, in which  
7 management reviews the CR3 Uprate project costs. Prior to these  
8 meetings, responsible operations managers and Finance Management for  
9 the organization review various monthly cost and variance analysis reports  
10 for the capital budget. Variances from total budget or projections are  
11 reviewed, discrepancies are identified, and corrections made as needed.  
12 The specific reports used are the Cost Management Reports produced by  
13 PEF Accounting. All cost reporting for the CR3 Uprate project is tied  
14 back to the Cost Management Reports which are tied back to the Legal  
15 Entity Financial Statements. In addition to the monthly Finance  
16 Committee meetings, senior management will periodically review the CR3  
17 Uprate project to monitor its cost and ensure that it is on schedule.

18  
19 **Q. Does the Company have any policies or procedures in place to assess**  
20 **and mitigate project risks?**

21 **A.** Yes. PEF has a robust risk identification and mitigation process. The  
22 Company routinely assesses various project risks and assigns each risk  
23 with a probability of occurrence and level of importance in terms of affect  
24 on project schedule and cost. PEF then develops multiple mitigation

1 strategies to eliminate or minimize the risk. The Company keeps detailed  
2 logs of these risk analyses, which are updated on a periodic basis. By  
3 utilizing this risk management process, the Company can effectively  
4 identify and prevent risk factors from affecting the project schedule and  
5 cost.

6  
7 **Q. Were any project risks identified that were deemed to have a high**  
8 **probability of affecting the Uprate project?**

9 **A.** Early in the Uprate project, the Turbine Building Crane Reliability was  
10 identified as having a high probability to cause schedule delays. Later,  
11 this probability was downgraded to medium probability and a mitigation  
12 strategy was developed to utilize an outside vendor, Hoist and Crane, to  
13 perform an assessment. Hoist and Crane plans to upgrade the controls for  
14 the crane by February 23, 2009, at which time annual maintenance will be  
15 performed by CR3 maintenance to include a complete inspection of the  
16 crane. Once these activities are completed, this risk will be mitigated.  
17 This demonstrates the effectiveness of the Company's risk management  
18 program.

19  
20 **Q. Are employees involved in the CR3 Uprate Project trained in the**  
21 **Company's project management and cost control policies and**  
22 **procedures?**

23 **A.** Yes, they are. PEF's project management team for the CR3 Uprate project  
24 has been trained in these Company policies. There are in fact formal

1 Project Manager qualification requirements for projects of various size as  
2 well as for other roles within the Project Team (Designated  
3 Representative, Field Lead, etc.). Members of the CR3 Uprate project  
4 management team have experience implementing these project  
5 management and cost control policies and procedures successfully on  
6 other Progress Energy projects and members of the Project Team also  
7 have been hired from other organizations which brings a rich mixture of  
8 experience to meet the project's demands.

9  
10 **Q. How has this experience helped the Company's employees with the**  
11 **project management of the CR3 Uprate project?**

12 **A.** PEF incorporated lessons learned from its experience with the uprates at  
13 other Progress Energy nuclear plants. Having been through those uprates,  
14 the Company has valuable experience that the Company can rely on in the  
15 course of this uprate project. The Company's prior experience adds value  
16 to all aspects of this uprate project, including staffing, vendor  
17 relationships, scheduling, and cost management. Additionally, although  
18 the entire CR3 uprate project cannot be compared to any of these other  
19 uprates, particular portions of the projects can be compared. By making  
20 such comparisons, PEF is able to ensure that the costs for these particular  
21 parts of the project are reasonably consistent with each other. This  
22 provides greater assurance that the CR3 Uprate project costs are  
23 reasonable and prudent.  
24

1 **Q. You mentioned outside vendors on the CR3 Uprate project. How does**  
2 **the Company ensure that its selection and management of outside**  
3 **vendors is reasonable and prudent?**

4 **A.** First, a requisition is created in the Passport Contracts module for the  
5 purchase of services. The requisition is reviewed by the appropriate  
6 Contract Specialist in Corporate Services, or field personnel on the CR3  
7 Uprate project, to ensure sufficient data has been provided to process the  
8 contract requisition. The Contract Specialist prepares the appropriate  
9 contract document from pre-approved contract templates in accordance  
10 with the requirements stated on the contract requisition.

11 The contract requisition then goes through the bidding or  
12 finalization process. Once the contract is ready to be executed, it is  
13 approved online by the appropriate levels of the approval matrix as per the  
14 Approval Level Policy and a contract is created. Contract invoices are  
15 received by the CR3 Uprate project managers. The invoices are validated  
16 by the project managers and Payment Authorizations approving payment  
17 of the contract invoices are entered and approved in the Contracts module  
18 of the Passport system.

19 When selecting vendors for the CR3 Uprate project, as I indicated,  
20 PEF utilizes bidding procedures through an RFP process when it can for  
21 the particular services or material needed to ensure that the chosen  
22 vendors provide the best value for PEF's customers. When an RFP cannot  
23 be used, PEF ensures that the contracts with the sole source vendors  
24 contain reasonable and prudent contract terms with adequate pricing

1 provisions (including fixed price and/or firm price, escalated according to  
2 indexes, where possible). When deciding to use a sole source vendor, PEF  
3 provides sole source justifications for not doing an RFP for the particular  
4 work.

5 In some instances where a sole source vendor must be used, for  
6 example, the vendor selected has particular experience with the plant or  
7 the work required, thus making it advantageous for that vendor to  
8 accomplish the work. This occurred, for example, with PEF's decision to  
9 contract with AREVA for certain work on the CR3 Uprate. AREVA  
10 purchased Babcock & Wilcox ("B&W"). The CR3 plant has a B&W  
11 designed reactor. By buying B&W, AREVA now owns the proprietary  
12 analysis and detailed information on how the reactor works. Further, they  
13 have partnered with Worley Parsons, which was previously the primary  
14 Architect/Engineer firm responsible for the CR3 design. This obviously  
15 provides AREVA with a distinct advantage over any other vendor and  
16 reduces cost and potential schedule impacts from adding an additional  
17 vendor interface.

18 In other instances where a sole source vendor is selected, the  
19 vendor has a fleet contract (which was secured through an RFP prior to the  
20 CR3 project) in which it provides service for other Progress Energy  
21 nuclear plants. Because of this working relationship, and the vendor's  
22 ongoing knowledge of and experience with Progress Energy's nuclear  
23 plants, it is reasonable for PEF to continue working with these vendors.  
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**Q. Does the Company verify that the Company's project management and cost control policies and procedures are followed?**

**A.** Yes, it does. PEF uses internal audits to verify that its program management and oversight control are being implemented and are effective in practice. On December 12, 2008, an audit was completed regarding the effectiveness of project management and cost management for the CR3 Uprate project. Other internal audits of the project and cost management on the CR3 Uprate project are scheduled for 2009. Additionally, the Company's project management policies themselves, included in the Company project management documents that I have described above, contain their own mechanisms to ensure that they are followed and effectively implemented.

**Q. Are the Company's project management and cost control policies and procedures on the CR3 Uprate project reasonable and prudent?**

**A.** Yes, they are. These project management policies and procedures reflect the collective experience and knowledge of the Company. As a result, Company employees have, in preparing the policies and procedures reflected in the Company's major capital project management documents that I have identified above, incorporated their experience and knowledge of project management policies and procedures that work within the Company and within the industry. These policies and procedures have also been tested by the Company on other capital projects. Any lessons learned from those projects have been incorporated in the current policies

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and procedures. We believe, therefore, that our project management policies and procedures are consistent with best practices for capital project management in the industry.

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

**A. Yes, it does.**

## EPU Equipment Replacement List

Component	Description	Contract	Scoping Document
LP & HP Turbine and Generator Upgrade	The existing turbine generator is not adequately sized to produce the additional MWe needed to support the project.	Siemens 145569 WA-50 (Siemens broken out for LP TG, Exciter, and Gen)	51-9043794-001 CR3 EPU Phase 1 Design Evaluation & Key Issues Scoping Study
	LP TG Cont; TGLO Cooler Tube Bundles need to be replaced for EPU conditions. The existing heat load removal capability is limited during summer operations. Increased demands on the TGLO system at EPU conditions warrants increasing the heat removal capability of these coolers.	Holtec 401987	EC-08056-R1 Seimens Turbine Retain Component Eval
MSR Replacement	The existing MSRs cannot adequately heat and dry the steam entering the LP turbines at uprated conditions.	TEI 342253	51-9043794-001 CR3 EPU Phase 1 Design Evaluation & Key Issues Scoping Study
MSR Belly Drain Modification	Current plant configuration dumps the MSR belly drains directly to the condenser. This design negatively impacts plant efficiency because a significant amount of usable energy is dumped to the condenser. This is a new system designed to improve plant efficiency in support of the total 180 MWe uprate. Heat is regained and put back into the feedwater system. This can account for between 4 and 6 MWe.	Holtec 2590, Amd 8	51-9043794-001 CR3 EPU Phase 1 Design Evaluation & Key Issues Scoping Study
BOP Piping Modifications	Four sections of BOP piping currently exceed design and allowable pressures and temperatures but are acceptable for continued operation at the current power level (NCR276695). The increased pressures and temperatures of EPU warrant changing this section of piping.		51-9043794-001 CR3 EPU Phase 1 Design Evaluation & Key Issues Scoping Study

CDHE-3A/B Feedwater Heater Replacement	The CDHE-3A/B feedwater heaters require replacement for EPU conditions based upon increased velocities and system pressure drop being outside HEI standards and shell dome pressure being far outside acceptable standards.	Yuba 355217	51-9043794-001 CR3 EPU Phase 1 Design Evaluation & Key Issues Scoping Study
Heater Drain Valve Replacement	The feedwater heater drain valves were evaluated using the predicted EPU flows, and the maximum flow that the valves can pass was inadequate at EPU conditions (choked flow).	PO	51-9043794-001 CR3 EPU Phase 1 Design Evaluation & Key Issues Scoping Study
Deaerator Modification	The existing deaerator heater FWHE-1 is not adequate for EPU conditions based on the maximum allowable condensate flow into the deaerator.	PO	51-9043794-001 CR3 EPU Phase 1 Design Evaluation & Key Issues Scoping Study
SC Heat Exchanger, Pump and Motor Replacement	Larger SC heat exchangers and pumps are required to support EPU conditions due to the increased SC heat load at EPU conditions.	Yuba 355217 (SCHE 1A/B included in cost above for CDHE 3A/B)	51-9043794-001 CR3 EPU Phase 1 Design Evaluation & Key Issues Scoping Study
	SC Pump, motor, and impeller	Flowserve PO's 383239 & 383274	51-9043794-001 CR3 EPU Phase 1 Design Evaluation & Key Issues Scoping Study
Iso Phase Bus Duct Cooling Modification	The existing iso-phase bus duct cooling system is not adequate for the required heat removal capability at EPU conditions.	Delta Unibus- 381244	51-9043794-001 CR3 EPU Phase 1 Design Evaluation & Key Issues Scoping Study
Feedwater Booster Pump Modification	The existing feed water booster pump is not adequate to supply the higher required flow rate for EPU conditions.	R17 PO	51-9043794-001 CR3 EPU Phase 1 Design Evaluation & Key Issues Scoping Study
Condensate Pump Modification	The existing condensate pumps and motors cannot supply the necessary flow and pressure at EPU conditions.	R17 PO	51-9043794-001 CR3 EPU Phase 1 Design Evaluation & Key Issues Scoping Study

LPI Crosstie & Boron Precip	Core Flood Line Break yeilds unacceptble peak fuel clad temperature results at EPU conditions. Post LOCA Boron precipitation mitigation can not be accomplished with existing system configuration.	R17 Modification	51-9043794-001 CR3 EPU Phase 1 Design Evaluation & Key Issues Scoping Study
Emergency Feedwater (EFW)	Emergency Feed water Pump 2 needs to provide increased flow at increased pressure for EPU conditons to mitgate license bassis accidents.	R17 Modifcation	51-9043794-001 CR3 EPU Phase 1 Design Evaluation & Key Issues Scoping Study