

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

**In re: Nuclear Cost Recovery
Clause**

**DOCKET NO. 100009-EI
Submitted for filing:
August 3, 2010**

REDACTED

REBUTTAL TESTIMONY OF JON FRANKE

**ON BEHALF OF
PROGRESS ENERGY FLORIDA**

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FPSC-COMMISSION CLEAR

IN RE: NUCLEAR COST RECOVERY CLAUSE

BY PROGRESS ENERGY FLORIDA

FPSC DOCKET NO. 100009-EI

REBUTTAL TESTIMONY OF JON FRANKE

1 **I. INTRODUCTION.**

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

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

5
6 **Q. By whom are you employed and in what capacity?**

7 **A.** I am employed by Progress Energy Florida, Inc. ("PEF" or the "Company") in the
8 Nuclear Generation Group and serve as Vice President – Crystal River Nuclear
9 Plant ("CR3").

10
11 **Q. Have you previously filed direct testimony in this docket?**

12 **A.** Yes, I filed direct testimony on March 1, 2010 and April 30, 2010.

13
14 **Q. Have you reviewed the Intervenor testimony filed in this docket?**

15 **A.** Yes, I have reviewed portions of the testimony of William R. Jacobs, Jr., Ph.D.
16 ("Jacobs") on the CR3 Extended Power Uprate Project ("CR3 Uprate") filed on
17 behalf of the Office of Public Counsel ("OPC"). I also reviewed the direct joint

1 testimony of Mr. William Coston and Mr. Kevin Carpenter and the direct joint
2 testimony of Mr. Lynn Fisher and Mr. David Rich (“Staff” or “Audit Staff”) both
3 filed on behalf of the Florida Public Service Commission (“FPSC” or the
4 “Commission”) including portions of the Staff Audit Report No. PA-10-01-001
5 (“Staff Audit Report”) with respect to the CR3 Uprate project and Florida Power
6 & Light Company’s (“FPL”) Extended Power Uprate Projects.

7
8 **II. PURPOSE AND SUMMARY OF REBUTTAL TESTIMONY.**

9 **Q. What is the purpose and summary of your rebuttal testimony?**

10 **A.** The purpose of my rebuttal testimony is to respond to the recommendations in
11 OPC witness Jacobs’ testimony and in the Staff Audit Report regarding the CR3
12 Uprate project. In sum, Jacobs recommends that the Commission require PEF to
13 provide an updated feasibility analysis next year and demonstrate that PEF’s
14 project schedule was prudent based on the results of the Nuclear Regulatory
15 Commission’s (“NRC’s”) future review of the License Amendment Request
16 (“LAR”) for the CR3 extended power uprate (“EPU”). This recommendation is
17 premised on Jacobs’ misconception that the design, engineering, and procurement
18 of equipment for the EPU can be separated from the preparation of the LAR for
19 NRC review and approval to reduce the risk of investment in the project before
20 LAR approval. In any event, PEF is required by the nuclear cost recovery rule to
21 provide an updated feasibility analysis each year and PEF will comply with that
22 requirement next year. Thus, Jacobs’ recommendation is duplicative of existing
23 requirements and unnecessary.

1 Staff makes three recommendations in the Staff testimony and the Staff
2 Audit Report. Two of these recommendations, as I explain more fully below,
3 relate to discrete cost or equipment item issues that have now been resolved at no
4 additional cost to PEF's customers at this time. The third recommendation
5 reflects Staff's concerns regarding the impact of the current extended outage at
6 CR3 on the CR3 Uprate project costs. Staff witnesses agree this extended outage
7 occurred because of a delamination within the wall of the containment vessel
8 during a separate and independent project from the CR3 Uprate project. Staff's
9 concern is with any potential indirect cost impacts caused by the impact of this
10 event on the CR3 Uprate project schedule. As I explain below, there are no cost
11 impacts as a result of this event in the Company's actual/estimated or projected
12 costs for the CR3 Uprate project in this docket. The Company's actual/estimated
13 and projected costs were prepared based on the CR3 Uprate project schedule that
14 existed before the impacts of the extended CR3 outage on the CR3 Uprate project
15 schedule were known. This concern, therefore, is not an issue in this proceeding.
16

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

18 **A.** Yes, I am sponsoring the following exhibits:

- 19 • Exhibit No. ___ (JF-3), Excerpts of Jacobs direct testimony in Docket No.
20 090009-EI;
- 21 • Exhibit No. ___ (JF-4), Excerpts of Franke rebuttal testimony in Docket No.
22 090009-EI;
- 23 • Exhibit No. ___ (JF-5), Change Order 23 to Work Authorization No. 84
24 between PEF and AREVA for the LAR portion of the Work Authorization;

- 1 ● Exhibit No. ____ (JF-6), Change Order 25 to Work Authorization No. 84
- 2 between PEF and AREVA for the LAR portion of the Work Authorization;
- 3 ● Exhibit No. ____ (JF-7), Work Authorization No. 84 between PEF and
- 4 AREVA for design and engineering work to support the CR3 Uprate project,
- 5 including work to support the LAR;
- 6 ● Exhibit No. ____ (JF-8), EPU Expert Panel November 6, 2009 Management
- 7 Debrief; and
- 8 ● Exhibit No. ____ (JF-9), April 13, 2009 NRC letter to PEF regarding the CR3
- 9 Uprate project.

10 These exhibits were prepared by me or the Company under my direction and
11 control, or they are documents regularly used by the Company in the normal
12 course of business, and they are true and correct.

13
14 **III. THE CR3 UPRATE PROJECT.**

15 **Q. What is the status of the CR3 Uprate project?**

16 A. The CR3 Uprate project is a three-phase project involving the engineering,
17 design, equipment procurement, and equipment installation necessary to generate
18 an additional, estimated 180 MWe of efficient nuclear power at the Company's
19 existing nuclear unit. The work necessary for this project was divided into three
20 phases to be performed during separate, planned re-fueling outages at CR3. The
21 first phase of the work was successfully completed during the 2007 CR3 refueling
22 outage and it was brought online in January, 2008, providing PEF and its
23 customers with an additional 12 MWe of nuclear energy generation.

1 The second phase of the work, called the balance of plant (“BOP”) work,
2 was planned for the 2009 CR3 refueling outage. A description of this work is
3 included in my direct testimony filed on March 1, 2010 and April 30, 2010 in this
4 proceeding. The BOP work performed during the 2009 CR3 refueling outage was
5 successfully completed on schedule and on budget. When CR3 returns to service
6 the BOP phase work will yield an additional 4 MWe nuclear energy production.

7 As I described in my April 30, 2010 direct testimony, PEF is currently
8 performing the engineering and design analyses and is identifying and procuring
9 the material and equipment necessary to complete the third and final phase of the
10 CR3 Uprate. This is called the EPU work phase because, upon completion of the
11 EPU work and NRC approval of the LAR for the power uprate, the Company will
12 be able to increase the power generated at CR3 by an additional 164 MWe. This
13 work will be performed during the next refueling outage for CR3. PEF expects
14 the EPU phase of the CR3 Uprate project to be successfully completed and the
15 LAR approved by the NRC. When Phase 3 is complete, the CR3 Uprate will, in
16 total, provide the Company with an estimated total additional 180 MWe nuclear
17 energy production.

18
19 **Q. Do Jacobs and the Audit Staff challenge the prudence of any of the specific**
20 **costs for the BOP Phase 2 work completed in 2009?**

21 **A.** No, they do not. Neither Jacobs nor Audit Staff challenge the prudence of any
22 specific, actual costs incurred for the BOP Phase 2 work that was performed
23 during the most recent CR3 refueling outage, called the R16 outage, in 2009.
24 Audit Staff reviewed and verified that the project remained on schedule with

1 minor variances and confirmed that no major issues were identified during the
2 work. (Staff Audit Report, p. 37). The Staff Auditors further confirmed that the
3 BOP work during the R16 outage was completed as scheduled and at projected
4 costs for the R16 outage. (Id.).

5
6 **Q. Is there any reason today to believe the CR3 Uprate project cannot be**
7 **completed and the estimated increase in nuclear power generation achieved?**

8 A. No. There is no indication that the CR3 Uprate project work cannot be
9 successfully completed and the power uprate achieved. The work for the final
10 phase of the CR3 Uprate project is progressing on pace for the next planned
11 refueling outage. With the current, extended outage at CR3, the next planned
12 refueling outage was extended, delaying the expected completion of the Uprate
13 project work and ultimate achievement of the power uprate. This means that the
14 timing of the final phase of the CR3 Uprate project and the power uprate has
15 changed; it does not mean the power uprate cannot be achieved. The Company
16 expects to complete the EPU during the next CR3 refueling outage and achieve
17 the power uprate.

18 Jacobs and the Staff witnesses do not disagree with this assessment.

19 Jacobs expresses general concerns regarding the technical complexity of the
20 project and the LAR submittal schedule. (Jacobs Test., p. 17, L. 15-25, p. 19, L.
21 1-8). But Jacobs does not recommend that the Company stop work on the EPU at
22 all or until the NRC approves the LAR. He does not claim, therefore, that the
23 Company's current project schedule is imprudent. Jacobs further does not claim
24 that the EPU phase work cannot be successfully completed or that the LAR for

1 the EPU will not be approved by the NRC. Jacobs nowhere claims in his
2 testimony that continued work on the EPU phase is imprudent.

3 The CR3 Uprate project is a technically challenging, complex project.
4 This is true, however, for all nuclear power plant construction projects, they are
5 all technically challenging and complex, but that does not mean they cannot be
6 successfully completed. Indeed, PEF has demonstrated that it can successfully
7 manage this challenging and complex project through completion of the first two
8 phases of the Uprate project during the first two refueling outages scheduled for
9 this work. PEF successfully completed the work for Phase 1 in 2007 and Phase 2
10 in 2009. Staff agrees that PEF successfully completed the Phase 2 work during
11 the 2009 CR3 refueling outage on schedule and on budget for that work phase.
12 PEF is on schedule to complete the work for Phase 3 in the Company's next CR3
13 refueling outage. There is no indication that the Phase 3 work cannot be
14 successfully completed and the LAR for the EPU approved despite the
15 complexity of the project.

16
17 **Q. Has the extended outage at CR3 affected the CR3 Uprate project schedule?**

18 **A.** Yes. The final phase of the CR3 Uprate work was scheduled for the CR3 re-
19 fueling outage subsequent to the 2009 refueling outage. However, as I indicated
20 above and in my direct testimony this year, CR3 is in an extended outage. This
21 extended outage at CR3 affects the schedule for the next CR3 refueling outage
22 and, therefore, the schedule for the final phase of the CR3 Uprate work.

23 This extended outage is due to the delamination of an area within the CR3
24 concrete containment building that occurred during the work for the steam

1 generator replacement project. This was a separate and independent project from
2 the CR3 Uprate project. As I testified in my direct testimony in April, this event
3 had nothing to do with the CR3 Uprate project work during the same refueling
4 outage. The Audit Staff witnesses agree that this event occurred during a separate
5 and independent project from the CR3 Uprate project. (Audit Staff Test., p. 4, L.
6 14-16). The delamination event has no impact on the CR3 Uprate project costs
7 apart from the impact on the CR3 Uprate project schedule due to the extended
8 outage at CR3 to address the delamination event.

9 As I indicated in my April 30, 2010 direct testimony, refueling outages
10 typically occur on eighteen to twenty-four month cycles depending on a number
11 of plant specific and Company-wide management issues. At the time of my April
12 30th direct testimony, the Company evaluated these factors and determined the
13 most reasonable time for the next CR3 refueling outage was the spring of 2012. I
14 explained, then, that this decision was still being evaluated. As a result of our
15 continued evaluation of this decision, the Company now expects that the next
16 CR3 refueling outage will be in fall 2012. Consequently, the schedule for the
17 final phase of the CR3 Uprate project will be extended to complete that work
18 during the next planned refueling outage in fall 2012.

19
20 **Q. Audit Staff recommends that the Commission monitor the CR3 Uprate**
21 **project costs for impacts resulting from scheduling delays caused by the**
22 **delamination event. Is that an issue in this Docket?**

23 **A.** No. PEF's actual/estimated 2010 and projected 2011 CR3 Uprate costs do not
24 reflect the extended CR3 outage impact on the CR3 Uprate project schedule. The

1 actual/estimated and projected costs flow from a CR3 Uprate project schedule that
2 planned for the EPU phase work in the next refueling outage in fall 2011. These
3 estimated and projected cost estimates, therefore, do not include any costs for the
4 impact of the shift in the timing of the next refueling outage due to the extended
5 CR3 outage. In any event, the extension of the next refueling outage from fall
6 2011 now to fall 2012 is expected to have minimal impact on the CR3 EPU costs.
7 The Company currently anticipates only some cost escalation over time due to the
8 extension of the next refueling outage and the final phase of the CR3 Uprate
9 project. These costs will be determined next year and reflected in the Company's
10 Nuclear Filing Requirements ("NFRs") in 2011.

11
12 **IV. THE STRUCTURE OF THE CR3 UPRATE PROJECT WORK.**

13 **Q. What does Jacobs have to say about the CR3 Uprate project in his direct**
14 **testimony?**

15 A. Jacobs' sole recommendation for the CR3 Uprate project is "that the Company
16 provide a full update of the status of the LAR at the next NCRC hearing," (Jacobs
17 Test., p. 21, L. 19-21), and that the Commission require that this update include a
18 demonstration "that the project remains economically feasible and that [PEF's]
19 project schedule was prudent." (Id., p. 21, L. 21-24) (emphasis added). The
20 Company is already required to provide an updated feasibility analysis each year
21 pursuant to the nuclear cost recovery rule. There is, therefore, no reason for the
22 Commission to require PEF to provide the Commission with an analysis the
23 Company is already required to provide.

1 **Q. Does Jacobs claim the CR3 Uprate project is not economically feasible or**
2 **that PEF's project schedule is imprudent?**

3 A. No. Jacobs does not assert that PEF failed to demonstrate that the CR3 Uprate
4 project is economically feasible this year or that PEF's project schedule is
5 currently imprudent. Jacobs asserts general concerns regarding the LAR schedule
6 and the technical complexity of the project because it is the largest uprate at a
7 Babcock & Wilcox ("B&W") plant (Jacobs Test., p. 17, L. 13-23), but he does not
8 assert that PEF's project schedule and Uprate work are currently imprudent based
9 on his concerns. As I noted above, Jacobs does not claim PEF should stop work
10 on the EPU or the LAR for the EPU.

11 Jacobs' essential claim is that he would structure the project differently,
12 making expenditures for the LAR only and foregoing expenditures for Phases 2
13 and 3 of the Uprate project until the NRC approved the LAR. Jacobs claims that
14 PEF could have reduced risk by resolving unidentified NRC licensing issues by
15 filing the LAR in September 2009 because, according to Jacobs, the NRC LAR
16 review could have been completed before the "portion of the phase 2 work (the
17 low pressure turbines ("LPTs")) was postponed until 2012 and the phase 3 work
18 would have to be done." (Id., p. 20, L. 9-16). Jacobs erroneously claims that had
19 the LAR been filed as planned in September 2009, the Company would have had
20 the opportunity to know of its success or failure before spending the money for
21 phase 3." (Id., p. 21, L. 1-5). In other words, Jacobs believes another reasonable
22 way to structure the Uprate project work is to prepare the LAR and wait for NRC
23 approval of the LAR before performing the BOP and EPU work.

1 Jacobs apparently believes the prudence of PEF's approach to the CR3
2 Uprate project should depend upon the NRC's future LAR determination. Jacobs
3 does not believe the risks associated with LAR approval are so high now that the
4 LAR will not be approved. Jacobs concedes the LAR may be submitted and by
5 next year "it could be approved." (Id., p. 21, L. 17-18). Only "if it has not been
6 approved" does Jacobs make his recommendation that PEF demonstrate next year
7 that the project remains economically feasible and that its project schedule was
8 prudent. (Id., p. 21, L. 18-24). Indeed, Jacobs argues that if the LAR is not
9 approved by the NRC, CR3 cannot operate at the new power level and "most
10 benefits of the EPU project would be lost." (Id., p. 19, L. 12-13). This is an
11 improper hindsight determination of a speculative event in the future. The
12 prudence of PEF's schedule and the feasibility of the project today cannot depend
13 on the NRC's LAR determination in the future. This being said, however, PEF
14 fully expects to receive approval from the NRC for its LAR, and Jacobs admits
15 that he would have no issue with the prudence of the EPU if PEF receives such
16 approval.

17
18 **Q. Is this the same argument Jacobs asserted last year in Docket No. 090009-EI?**

19 **A.** Yes. Jacobs is making the same argument that he made last year. Last year, he
20 asserted PEF should have obtained reasonable assurances of NRC approval of the
21 LAR before incurring the costs for the BOP Phase 2 work. See Exhibit No. ____
22 (JF-3) to my rebuttal testimony. This year, he asserts PEF should wait until the
23 NRC approves the LAR before incurring the costs for the LPTs that were deferred
24 from Phase 2 to Phase 3 and the Phase 3 EPU work until the NRC approves the

1 LAR. (Id., pp. 20-21). The Commission did not accept this position last year
2 when it approved PEF's requested cost recovery for the CR3 Uprate project and it
3 should not accept this position this year. This position is simply inconsistent with
4 the necessary structure of the CR3 Uprate project work to successfully complete
5 the project and achieve the power uprate, and the Commission ruled on this very
6 issue last year.

7
8 **Q. How is the CR3 Uprate project work structured to successfully complete the**
9 **work and achieve the power uprate?**

10 A. The BOP and EPU phases of the CR3 Uprate are one project even though the
11 implementation of these phases occurs over the course of separate CR3 refueling
12 outages. The design, engineering, and equipment procurement work must be
13 performed at the same time as the LAR work to successfully complete the project
14 and achieve the power uprate. The design, engineering, and procurement of
15 equipment for the BOP and EPU phases cannot be separated from the preparation
16 of the LAR as Jacobs erroneously suggests. This work is necessarily tied together
17 and must be completed at substantially the same time to successfully complete the
18 project and obtain LAR approval for the power uprate.

19 Simply put, PEF must perform initial design and engineering work to
20 identify the necessary BOP and EPU modifications and new equipment and PEF
21 must have the specifications for the BOP and EPU modifications and equipment
22 to complete the design and engineering work. The LAR must explain the BOP
23 and EPU modifications and new equipment to achieve the power uprate in
24 sufficient detail to support NRC approval of the LAR. Jacobs, in fact, agrees that

1 the LAR “will describe in detail the design changes to the plant, how these
2 changes modify the original plant safety analysis and how it affects plant
3 operations. Many plant operating and maintenance procedures will have to be
4 modified.” (Id., p. 18, L. 19-22). To prepare the LAR, then, the Company must
5 complete the design and engineering work for the BOP and EPU modifications
6 and equipment to explain their impact on plant operation and maintenance, and
7 PEF must have the manufacturer specifications for the modifications and
8 equipment to finalize the BOP and EPU design and engineering work for the
9 LAR.

10 These BOP and EPU modifications and new equipment are not “off the
11 shelf” items. They must be specifically designed to work in PEF’s nuclear power
12 plant. Manufacturers are not going to prepare specifications for material and
13 equipment for the plant without orders for the material and equipment. PEF,
14 therefore, must procure the material and equipment to obtain the specifications
15 necessary to complete the design and engineering work for these phases that must
16 also be included in the LAR. All of this work is, therefore, necessarily
17 inseparable and PEF must incur the costs for the BOP and EPU phase design,
18 engineering, and equipment and material procurement at the same time PEF
19 incurs the costs to complete the LAR to successfully complete the project and
20 obtain NRC approval of the LAR for the EPU. Again, the Commission ruled on
21 these very issues in last year’s proceeding, but Jacobs has raised them again this
22 year and PEF’s same responses and the Commission’s prior ruling in PEF’s favor
23 on these issues remain correct today.

1 **Q. Can you provide an example of an EPU phase modification or piece of**
2 **equipment to demonstrate how the design, engineering and equipment**
3 **procurement costs are inseparable from the preparation costs for the LAR?**

4 A. Yes. The EPU phase will involve the installation of four Moisture Separator
5 Reheaters (“MSRs”) together with other process heat exchangers and coolers.
6 The detailed description of the operation of these EPU components in the LAR
7 requires design specifications for the components under EPU conditions that can
8 only be obtained from the manufacturer upon procurement of the components. To
9 illustrate, the system impact of these components on pipes and hangars, thermal
10 hydraulics, plant efficiencies, and accident analysis are all directly related to the
11 design specifications for these modifications. The manufacturer specifications for
12 these components are used to complete the design and engineering work
13 necessary to describe the performance and operation of these components under
14 the particular CR3 EPU conditions in the LAR.

15 The LPTs and high pressure turbines (“HPTs”) are another example. For
16 the CR3 uprate, turbine procurement is required to obtain manufacturer
17 specification information called the thermal kit. The specifications for the turbine
18 thermal kit are necessary for various design calculations that are performed and
19 then summarized for the LAR application.

20
21 **Q. Did you explain the necessary structure of the CR3 Uprate project work and**
22 **the LAR in your rebuttal testimony last year?**

23 A. Yes, as I previously mentioned, Jacobs made essentially the same argument last
24 year. I testified last year that the engineering studies to support the EPU and the

1 LAR are extensive and that most of the details for each of the modifications to the
2 plant and equipment have to be finalized in order to complete the engineering
3 analyses for the LAR. I explained that all of these costs must be incurred as part
4 of the LAR preparation and, therefore, a significant portion of the total uprate
5 project costs must be spent in order to support the LAR submittal. See Exhibit
6 No. ___ (JF-4) to my rebuttal testimony.

7
8 **Q. Were PEF's Uprate actual costs determined to be prudent and PEF's Uprate**
9 **estimated and projected costs determined to be reasonable last year?**

10 A. Yes, the Commission in Order No. PSC-09-0783-FOF-EI approved for recovery
11 PEF's Uprate project costs last year, finding PEF's actual Uprate project costs to
12 be prudent and PEF's estimated and projected Uprate costs to be reasonable. See
13 Order No. PSC-09-0783-FOF-EI, pp. 35, 40.

14
15 **Q. Is the way PEF has structured the work and costs for the CR3 Uprate project**
16 **consistent with the way other utilities have structured the work for nuclear**
17 **power plant uprate projects?**

18 A. Yes. Again, as I testified last year, this approach is typical of our experience with
19 the CR3 Uprate project, the Brunswick EPU, and the industry's experience with
20 uprate projects. See Exhibit No. ___ (JF-4) to my rebuttal testimony. It is also
21 consistent with other Florida projects, and I am not aware of any utility that has
22 achieved or that is pursuing a power uprate that has not followed this approach to
23 the EPU project and NRC licensing work in order to successfully complete the
24 project and obtain approval for the power uprate.

1 **Q. Jacobs claims that if PEF filed the LAR in September 2009, PEF would have**
2 **had an opportunity to know of its success or failure before spending the**
3 **money for Phase 3. (Jacobs Test., p. 21, L. 1-3). Is Jacobs correct?**

4 **A.** No. For all the reasons I explained above, preparation of the LAR necessarily
5 requires design, engineering, and material and equipment procurement work for
6 the EPU so that the EPU modifications and equipment can be adequately
7 described in the LAR. The money for the Phase 3 EPU, therefore, had to be spent
8 in order to prepare the LAR for submittal to and approval by the NRC. The
9 independent expert panel review of the draft LAR that I described in my rebuttal
10 testimony last year confirms this result. As I described then, this expert panel was
11 asked to review the draft LAR to ensure that it contained sufficient detail to allow
12 the NRC to independently conclude that the CR3 EPU was acceptable. One of
13 the conclusions of that expert panel was that the draft LAR did not provide
14 sufficient design and engineering detail for the EPU equipment and modifications
15 to plant operations for the NRC to accept the LAR for approval. In other words,
16 the independent expert panel that reviewed the draft LAR in the summer of 2009
17 concluded that PEF had not spent enough money on the EPU phase to adequately
18 describe those modifications in the LAR for the NRC to accept and approve the
19 EPU LAR.

20 PEF accepted the expert panel comments and invested the money in the
21 design, engineering, and material and equipment procurement necessary to obtain
22 the specifications required to complete the design and engineering work for the
23 EPU modifications to improve the LAR submittal to the NRC. Subsequent expert
24 panel reviews confirmed that PEF adequately addressed the expert panel

1 comments and prepared a LAR submittal acceptable for review and approval by
2 the NRC. The point is, PEF had to spend more not less money on the EPU phase
3 work to prepare an LAR that was sufficient for NRC acceptance and approval of
4 the EPU.

5
6 **Q. Did PEF prepare an LAR that it believed was sufficient for NRC acceptance**
7 **review and approval?**

8 A. Yes. As I stated in my April 30 direct testimony, the Company believed its LAR
9 was complete and ready to be submitted to the NRC by March 31, 2010. The
10 completion of the LAR for NRC submittal purposes was confirmed by our
11 independent expert panel reviews. As I testified then however, PEF elected to
12 hold off filing the LAR because of the shift in the next CR3 refueling outage. It
13 simply was not the optimal time to file the LAR with the NRC to meet the
14 estimated schedule for the final phase of the CR3 Uprate project. PEF must be
15 cognizant of available NRC resources for LAR reviews and coordinate its filing
16 with the NRC to ensure PEF is not requiring NRC resources to be devoted to
17 review of its LAR before that review is necessary. Additionally, it allows
18 additional time for PEF to monitor the changing NRC requirements so that we can
19 incorporate them into our submittal. PEF, therefore, did not want to file the LAR
20 too early, given its construction schedule, and potentially delay NRC approval.
21 Based on the planned next CR3 refueling outage at the time of my April 30 direct
22 testimony, PEF expected to file the LAR by June 1, 2010.

23 The fact that PEF believed its LAR was complete and ready to be filed
24 with the NRC did not mean, however, that PEF stopped working with the NRC in

1 advance of LAR submittal for NRC approval. PEF continues to follow the
2 practice I described in my rebuttal testimony last year. See Exhibit No. ___ (JF-
3 4) to my rebuttal testimony. PEF regularly interacts with the NRC regarding the
4 preparation of the EPU LAR. Thus, even though PEF completed the LAR in
5 March and was prepared to submit it to the NRC in June, PEF no longer had to
6 file it with the NRC by either of those dates to meet the EPU work schedule given
7 the extended CR3 outage. PEF took advantage of this additional time to continue
8 its interaction with the NRC regarding any emerging issues with respect to PEF's
9 LAR before it is submitted to the NRC for approval.

10 As I explained last year, even when PEF is fairly certain about how an
11 EPU safety issue should be resolved, PEF discusses the issue with the NRC in
12 advance. In this way, PEF does not choose a course of action to address a safety
13 issue in a vacuum without NRC input. PEF proactively raises and discusses
14 issues and PEF's proposed solutions to those issues with the NRC. This allows
15 PEF to work through the issues and learn the NRC's preferences for solutions to
16 those issues in advance of LAR submittal. As I explained in 2009, PEF had three
17 pre-application meetings with the NRC regarding the LAR by mid-2009. PEF has
18 had additional pre-application meetings with the NRC regarding the PEF LAR in
19 2010. As a result of this interaction with the NRC in 2010, an emerging issue has
20 recently arisen with PEF's LAR that PEF and the NRC are currently working
21 through and expect to resolve without impacting the planned power uprate,
22 although PEF will not submit the LAR until it reflects a solution satisfactory to
23 the NRC. PEF will continue with this interaction as necessary up to and after the
24 date PEF files its LAR for the CR3 EPU with the NRC.

1 **Q. Does this approach to the LAR benefit PEF and its customers?**

2 **A.** Yes. This proactive process with the NRC provides PEF more certainty regarding
3 the costs of the Uprate project. PEF is obtaining information now to address NRC
4 questions regarding the LAR, thereby reducing the likelihood these questions will
5 need to be addressed during the formal (and potentially more costly) request for
6 additional information (“RAI”) process after LAR submittal. Because PEF has
7 proactively interacted with the NRC regarding the NRC’s questions, PEF has
8 learned in advance of LAR submittal what additional design, engineering, and
9 procurement work is required to address and resolve those questions. This
10 provides PEF greater cost certainty with respect to the EPU costs than if PEF
11 submitted the LAR and later learned of these questions through the NRC RAI
12 process and had to perform the design, engineering, and procurement work
13 necessary to address the NRC’s questions at that time.

14 This approach is especially beneficial given the evolving industry
15 standards associated with NRC review and approval of power uprates.
16 Historically, the NRC requested far less upfront technical information and detail
17 for LAR submissions and dealt with more issues and modifications through RAIs.
18 The Ginna LAR submission is one such example. However, NRC expectations
19 have evolved since the Ginna LAR was submitted and approved. Today, LAR
20 submissions require a higher level of technical detail than ever before. This is
21 true for all power uprate projects. For example, the Staff Audit Report regarding
22 the FPL power uprates notes that FPL faces a number of technical issues with its
23 LAR due to expanding regulatory standards. (FPL Staff Audit Report, p. 31).
24 Given these evolving regulatory expectations, PEF believes it is important to

1 closely interact with the NRC regarding its expectations with respect to the CR3
2 EPU LAR to ensure that PEF addresses these expectations on the front end to
3 enhance PEF's information regarding the EPU costs and improve the likelihood
4 of LAR approval. PEF's ability to enhance its knowledge of the EPU LAR
5 requirements allows PEF to better manage the work and costs on the front end and
6 provides PEF with greater cost certainty.

7
8 **Q. Is it possible to wait to incur the BOP and EPU equipment procurement costs**
9 **until LAR approval, as suggested by Jacobs?**

10 **A.** I suppose it is possible but it is not reasonable or prudent to manage the CR3
11 Uprate project in that manner. As I explained in my rebuttal testimony last year,
12 the uprate work on the project would be delayed with a corresponding delay in the
13 EPU benefits to PEF and its customers and potentially higher uprate costs.

14 The higher uprate costs would result from separating the design and
15 engineering work from the equipment identification and procurement thereby
16 reducing the details available for EPU modifications from the manufacturer's
17 specifications. Less detailed design and engineering for EPU modifications
18 means a less detailed LAR submittal, increasing the risk that the LAR will not be
19 accepted for LAR review and approval and increasing the risk that subsequent
20 modifications will be identified later requiring additional design and engineering
21 work that could have been avoided if the issues were identified earlier. This is, in
22 fact, what has happened with other LARs for extended power uprates. The
23 Monticello EPU LAR was withdrawn in the summer of 2008 to avoid application
24 rejection because the utility had not adequately addressed all EPU modifications

1 in its LAR. Separating the EPU equipment procurement from the LAR
2 preparation and submittal, therefore, will increase the costs of the power uprate
3 project and increase the risks that the LAR submittal will not be accepted or
4 approved. PEF has avoided these risks with its approach to the project.

5 Also, if the EPU equipment procurement was separated from the LAR
6 preparation and submittal and did not proceed until the LAR was approved, this
7 process would delay the benefits of the EPU phase. Indeed, Jacobs himself
8 admitted last year this process would delay the benefits of the EPU for at least one
9 refueling outage. (July 27, 2009 Jacobs Deposition, p. 170, L. 9-16). The reality
10 is, however, that these benefits would be delayed more than one refueling outage.
11 Equipment procurement itself is a process that takes time. The Company must
12 either issue a Request for Proposal and analyze the resulting bids, or perform an
13 analysis to support a sole or single source contract. Once a vendor is chosen,
14 additional time is required for the vendor to prepare the product specifications and
15 manufacture the equipment. To illustrate, fabrication of the
16 Generator/Rotor/Exciter, the LPTs, and the HPTs all require 24 to 36 month lead
17 times from the notice to proceed. This is in addition to the time necessary for the
18 equipment procurement process. As a result, delaying the equipment procurement
19 process until the LAR is approved will delay the EPU benefits more than four
20 years. Even assuming this process did not yield additional, necessary EPU
21 modifications and corresponding LAR modifications --- which is likely --- the
22 EPU benefits would be delayed for multiple refueling outages.

23

1 **Q. Given his recommendations, does Jacobs express an opinion that any cost**
2 **incurred by PEF for the CR3 Uprate project for 2009 is imprudent?**

3 **A.** No, he does not.
4

5 **Q. Does Jacobs identify any specific estimated 2010 or projected 2011 CR3**
6 **Uprate project cost that he claims is unreasonable and that PEF should not**
7 **incur for the CR3 Uprate project?**

8 **A.** No.
9

10 **Q. Is there any indication that the CR3 EPU LAR will not be approved by the**
11 **NRC?**

12 **A.** No. The issue with LAR approval is a matter of timing not substance. The CR3
13 EPU LAR will be approved, the only question is when. In PEF's frequent
14 interaction with the NRC regarding the EPU safety issues and solutions with
15 respect to the CR3 power uprate, the NRC has never indicated that there is an
16 issue that will prevent approval of the CR3 EPU LAR when it is submitted. Even
17 Jacobs does not suggest an issue that precludes approval of the CR3 EPU LAR.
18 In fact, he acknowledges that the LAR "could be approved." (Jacobs Test., p. 21,
19 L. 17-18). Further, no LAR accepted for review has ever been denied by the
20 NRC, though submittals are sometimes withdrawn and often modified based on
21 NRC questions. See generally NRC Q&A, at [http://www.nrc.gov/reactors/plant-](http://www.nrc.gov/reactors/plant-specific-items/vermont-yankee-issues/faqs.html#eleven)
22 [specific-items/vermont-yankee-issues/faqs.html#eleven](http://www.nrc.gov/reactors/plant-specific-items/vermont-yankee-issues/faqs.html#eleven). There is, therefore, no
23 basis to believe the NRC will not ultimately approve the CR3 EPU LAR.
24

1 V. LAR COSTS.

2 Q. What does the Staff Audit Report recommend with respect to the CR3
3 Uprate project costs?

4 A. Audit Staff recommends that the Commission consider whether an additional [REDACTED]
5 [REDACTED] for the LAR re-write and additional engineering work by AREVA for the
6 LAR application resulted from inadequate management oversight. (Staff Audit
7 Report, p. 59). Audit Staff's recommendation is based on the July 2009 expert
8 panel report that I previously mentioned and PEF's subsequent, internal adverse
9 condition report in response to the expert panel recommendations. In sum, the
10 expert panel report found, as I explained above, that PEF had not incurred the
11 costs and performed the work necessary to that point to prepare a draft EPU LAR
12 capable of NRC acceptance review. As Audit Staff notes, the Company had to
13 expend resources to strengthen the EPU LAR submittal to prepare a quality LAR
14 draft that, if submitted, was acceptable for review by the NRC. PEF did expend
15 these resources on the design, engineering, and procurement work for the EPU to
16 enhance the LAR and subsequent expert panel reviews confirmed that the work
17 had been done and that the LAR submittal met NRC acceptance standards.

18
19 Q. Did the Company's internal adverse conditions report conclude that the
20 Company had not provided adequate management oversight for the LAR
21 prior to the submittal of the draft LAR to the expert panel?

22 A. Yes. PEF initially relied too heavily on AREVA to prepare the draft LAR for
23 review by the expert panel and did not engage sufficient management oversight of
24 that work as early as PEF should have. PEF subsequently added these

1 management resources to the LAR consistent with the recommendations of the
2 expert panel and internal adverse conditions reports and improved the LAR draft
3 to the quality acceptable for NRC review and approval. As I previously
4 explained, this required additional work that had not been performed that was
5 necessary to prepare a quality LAR submittal. Sections of the LAR had to be
6 changed to meet evolving industry standards and NRC expectations and
7 additional design, engineering, and material procurement work had to be
8 performed to address necessary EPU modifications in the LAR. However, any
9 work by AREVA to correct the quality of unchanged portions of the LAR was
10 performed at AREVA's cost. PEF paid AREVA no additional funds to re-do or
11 re-write unchanged LAR sections. PEF, therefore, addressed the expert panel and
12 internal adverse condition report recommendations at no additional cost to
13 customers.

14
15 **Q. Why did PEF retain AREVA to perform this work?**

16 **A.** PEF contracted with AREVA to perform engineering work and draft the LAR
17 because AREVA is the successor to B&W the original vendor of the CR3 plant.
18 As a result, AREVA owns the technology rights and is the most experienced and
19 knowledgeable vendor with respect to B&W plants like CR3. AREVA, therefore,
20 was a necessary vendor for the power uprate work for CR3.

21
22 **Q. Do the Staff auditors indicate that the LAR work by AREVA and PEF in**
23 **response to the expert panel recommendations was not necessary for the**
24 **LAR submittal?**

1 A. No they do not. In fact Audit Staff acknowledges that extensive work is
2 necessary to complete the LAR and that the substantial work performed after the
3 expert panel report in response to the expert panel recommendations may have
4 been necessary in any event to complete the LAR. (Staff Audit Report, p. 40).

5
6 **Q. Was the independent expert panel an integral part of PEF's project**
7 **management, contracting, and oversight controls for the CR3 Uprate**
8 **project?**

9 A. Yes, it was. PEF hired AREVA to draft the LAR, but PEF just didn't accept
10 AREVA's draft LAR. PEF, as a responsible licensee, established a team of
11 industry experts, including outside experts, to critically review the draft LAR for
12 completeness, correctness, clarity, and conformance with industry best practices,
13 and to improve it, if possible. Audit Staff acknowledges "the important role of
14 the expert panel and its critical evaluation had in insuring a complete and
15 thorough LAR submittal to the NRC." (Id., p. 40). PEF's decision to have an
16 expert panel review the LAR drafted by AREVA was consistent with best
17 industry practice and, therefore, prudent project management.

18 The subsequent adverse conditions internal audit report regarding the
19 quality of PEF management of vendor work on the draft LAR also reflects
20 prudent project management. Obviously, PEF prefers different conclusions, but
21 PEF understands that independent external and critical internal reviews are
22 necessary to any prudent project management process. Audit Staff agreed PEF's
23 self-assessment process is important and valuable. (Id.). PEF accepted the
24 criticisms of the draft LAR report and its management, created and implemented

1 an action plan to address them, and corrected them. Further expert panel reviews
2 in November 2009 and January 2010 confirmed that these recommendations were
3 adequately addressed. See, e.g., Exhibit No. ____ (JF-8).

4 This demonstrates PEF's prudent project management, contracting, and
5 oversight controls. PEF reviewed and re-reviewed the LAR work, corrected any
6 work that was not up to par, and ensured a final, sufficient and adequate work
7 product consistent with standards at the time the LAR must be submitted. This is
8 exactly what is supposed to occur when prudent project management and
9 oversight controls are in place, and this is how those project management and
10 oversight controls are supposed to be implemented to identify and remedy any
11 issues on a timely basis.

12
13 **Q. Audit Staff identifies change order costs for AREVA for certain LAR work**
14 **and questions whether these costs represent avoidable work and costs. Were**
15 **these change orders for avoidable or duplicative LAR work?**

16 **A.** No. Audit Staff questions two change orders PEF executed with AREVA.
17 Neither one of these change orders involves avoidable or duplicative LAR work.
18 The fact that they are "change" orders means they are for additional, not
19 duplicative or avoidable, work.

20 The first change order Audit Staff questions is Change Order 23 in the
21 amount of [REDACTED]. This change order is for the work necessary to re-write
22 the LAR to comply with the revised LAR template to meet evolving industry
23 standards and NRC expectations. Change Order 23 expressly states the LAR re-
24 write effort was to re-write sections of the LAR to comply with the revised

1 template and other new scope activities. It is not payment to AREVA to re-write
 2 poorly drafted LAR sections. Indeed, Change Order 23 further expressly states
 3 that the expert panel “comment incorporation is considered part of the original
 4 scope of activities and is not included in this scope of work” (emphasis added).
 5 See Exhibit No. ___ (JF-5) to my rebuttal testimony.

6 On its face, Change Order 23 makes clear this [REDACTED] payment was
 7 for additional work and that it was not payment to correct prior work. Change
 8 Order 23 also makes clear that the “LAR re-write effort” work is [REDACTED], not
 9 [REDACTED] as indicated in the Staff Audit Report. (Staff Audit Report, p. 5).
 10 AREVA was entitled to more compensation for more work to conform the LAR
 11 to additional requirements based on evolving industry standards and NRC
 12 expectations.

13 The second Change Order that Audit Staff questions is Change Order 25
 14 for an additional [REDACTED]. This Change Order is for additional engineering work
 15 scope required to support the LAR. It included engineering work to incorporate
 16 EPU Phase 3 work into the LAR. The [REDACTED] was therefore paid to AREVA
 17 for additional engineering work scope required to complete the LAR based on the
 18 EPU phase work. See Exhibit No. ___ (JF-6) to my rebuttal testimony.

19
 20 **Q. Did PEF pay AREVA twice for the same work to draft the LAR?**

21 **A.** No. AREVA will only be paid the original contract amount of [REDACTED] to
 22 write the LAR sections reviewed by the expert panel in July 2009 utilizing the
 23 Ginna LAR submittal as the initial model. These payments are identified at line
 24 items 8.28, 8.28 revised, and Note 2 in the “Deliverable Section” on page 4 of the

1 Work Authorization No. 84 between PEF and AREVA for design and engineering
 2 work to support the CR3 Uprate project, including the work to support the LAR.
 3 These line items demonstrate that AREVA was paid [REDACTED] for LAR inputs
 4 and draft comment responses and that AREVA will be paid another [REDACTED]
 5 when the LAR is submitted to the NRC. See Exhibit No. ___ (JF-7) to my
 6 rebuttal testimony. That is all AREVA will be paid for the initial draft LAR
 7 work. After the expert panel issued its report and recommendations, AREVA
 8 corrected their quality issues and re-wrote the LAR sections at AREVA's own
 9 cost. PEF paid AREVA no additional compensation for this corrective work.

10 PEF met with AREVA prior to AREVA submitting each invoice under
 11 Work Authorization No. 84 and Change Order 23. That is why the costs for work
 12 to re-write portions of the LAR do not show up in subsequent AREVA invoices to
 13 PEF. However, AREVA did in fact correct portions of the LAR without charging
 14 PEF for those corrections. Subsequent expert panels confirmed that these
 15 corrections were made. See, e.g., Exhibit No. ___ (JF-8) to my rebuttal
 16 testimony. PEF, however, paid AREVA no additional compensation for that
 17 work.

18
 19 **Q. Why was a revised LAR template necessary for the LAR?**

20 **A.** The revised template for the LAR was required to ensure that the LAR submittal
 21 met evolving industry standards and NRC expectations for LAR submittals. At
 22 the time PEF initiated the project in 2007, PEF asked the NRC what LAR
 23 submittal should be used by PEF as a model for its LAR submittal for the CR3
 24 EPU. The NRC suggested the Ginna LAR submittal as a model. The Ginna LAR

1 was the most recent NRC-approved LAR for a power uprate. As late as April 13,
2 2009, the NRC confirmed without question that PEF was using the Ginna LAR as
3 a model for its CR3 EPU LAR. See Exhibit No. ___ (JF-9) to my rebuttal
4 testimony. The Ginna LAR was the basis for the LAR drafting work by AREVA
5 under Work Authorization No. 84.

6 Over time, however, NRC expectations and industry standards for LAR
7 submittals for power uprates evolved. For example, during the course of the
8 Monticello and Point Beach LAR NRC reviews, NRC standards for LAR
9 applications evolved and the level of detail and the analyses required in the LAR
10 increased. This was pointed out by the expert panel report when it reviewed the
11 AREVA draft LAR based on the previously acceptable Ginna LAR. These
12 evolving NRC expectations and industry standards resulted in a new template for
13 the CR3 Uprate LAR. This new LAR template required additional LAR sections
14 and considerably more detail for the existing LAR sections in the draft LAR
15 based on the previous Ginna LAR model. As a result, AREVA was entitled to
16 more compensation for more work to add LAR sections and add detail and
17 engineering analyses to existing LAR sections to satisfy the evolving industry
18 standards and NRC expectations. There was no avoidable or duplicative work
19 that was performed by AREVA and paid for by PEF. As the Audit Staff
20 acknowledges might be the case, all additional work required to address the
21 expert panel recommendations regarding the LAR necessarily had to be done to
22 get to the same LAR submittal. (Staff Audit Report, p. 41).

1 **Q. Did the issues with AREVA's work on the draft LAR impact the schedule for**
2 **submittal of the LAR for approval by the NRC in time for implementation of**
3 **the power uprate at CR3?**

4 **A.** No. The September 2009 LAR submittal deadline was an initial, aggressive target
5 date for the CR3 EPU LAR submittal. As the Staff Audit Report acknowledges,
6 the Company had substantial float in its LAR schedule. Audit Staff notes that the
7 initial September 2009 target date for LAR submittal to the NRC provided
8 approximately twenty-four months to complete the LAR application review
9 process prior to the then-planned November 2011 refueling outage for the Phase 3
10 work. (Staff Audit Report, p. 38). As I explained above, this licensing process is
11 targeted to take fourteen months to obtain NRC LAR approval from the date the
12 LAR is submitted. PEF therefore had approximately ten months of float in the
13 LAR schedule based on the September 2009 LAR target submittal date. That
14 means that, even if the November 2011 refueling outage was not extended to fall
15 2012, PEF had until August 2010 to submit its LAR for the EPU in time for NRC
16 approval upon completion of the Phase 3 work.

17 With the extended CR3 outage, PEF now has additional time to submit its
18 LAR for approval before the Phase 3 work will be completed. As I explained
19 above, PEF is taking that additional time to continue PEF's process of pro-
20 actively addressing any NRC issues with PEF's proposed EPU modifications in
21 advance of the LAR submittal to ensure acceptance and timely NRC approval of
22 the LAR submittal and to have a better grasp on the ultimate EPU work and costs
23 required for the CR3 EPU.

24

1 **VI. LOW PRESSURE TURBINES (LPTs) FOR THE CR3 UPRATE PROJECT.**

2 **Q. What does the Staff Audit Report recommend with respect to the CR3**
3 **Uprate project LPTs?**

4 **A.** Audit Staff recommends that the Commission monitor the results of the
5 Company's negotiations with Siemens regarding the LPTs to ensure PEF recovers
6 all appropriate costs and handles any impacts to the project based on a change in
7 design of the LPTs. (Staff Audit Report, p. 59). Siemens is the vendor
8 manufacturing and supplying the LPTs for the CR3 Uprate project.

9 I described in detail in my April 30, 2010 direct testimony the issues
10 surrounding the LPTs and the Company's options for addressing the LPTs issues.
11 As I explained there, based on the Company's analysis of these issues and its
12 options, the Company decided to install the 18M² with the last row of blades as
13 originally contemplated for the CR3 Uprate project. There is, therefore, no
14 change in the designed LPTs for the Uprate project.

15
16 **Q. Does Audit Staff assert that PEF's actions with regard to the LPTs were**
17 **imprudent or unreasonable?**

18 **A.** No. As I explained in my April 30, 2010 direct testimony, the LPTs issues relate
19 to insurance issues arising from the DC Cooke outage resulting from the failure of
20 similar LPTs planned for CR3, and the slippage of the last row of blades in the
21 CR3 LPTs in a performance test for the CR3 LPTs as a result of a manufacturing
22 problem, not a design issue. These technical, manufacturing, and insurance issues
23 led to the deferral of the LPTs from Phase 2 to Phase 3. Audit Staff notes that the
24 additional costs required to redesign the work scope to move the LPTs from Phase

1 2 to Phase 3 in the amount of [REDACTED] is due to “possible vendor error.” (Staff
 2 Audit Report, p. 43). Nowhere in the report does Audit Staff assert that the LPTs
 3 issues were the result of PEF imprudence. PEF in fact prudently managed the
 4 LPTs through vendor oversight and took appropriate action when the vendor
 5 issues were identified. Audit Staff notes that PEF’s Quality Assurance group
 6 rejected this product component because of the failure to meet contractual
 7 acceptance criteria in recognizing the importance of PEF’s Vendor Oversight Plan
 8 in the Staff Audit Report. (Id., p. 53).

9
 10 **Q. Has PEF resolved the LPTs issues with Siemens?**

11 **A.** Yes. PEF recently resolved the LPTs issues with Siemens. As a result of that
 12 settlement, PEF [REDACTED]
 13 [REDACTED] the low pressure turbine rotors under a new Letter of
 14 Intent (“LOI”) executed with Siemens. This [REDACTED]
 15 [REDACTED] identified by Audit Staff associated with re-
 16 scheduling the LPTs from Phase 2 to Phase 3. The [REDACTED]
 17 [REDACTED] to PEF and its customers all other circumstances being
 18 equal. The [REDACTED] will be reflected in the true-up of
 19 costs in the 2011 NCRC docket. In addition, Siemens agreed [REDACTED]

20 [REDACTED]
 21
 22 **VII. CONCLUSION.**

23 **Q. Will the CR3 Uprate project be successfully completed at a reasonable and**
 24 **prudent cost to the Company and its customers?**

1 A. Yes. As I explained above, we are well on the way to successfully completing the
 2 CR3 Uprate project and achieving the power uprate benefits, albeit on a longer
 3 schedule than originally anticipated due to the extended CR3 outage. There is no
 4 indication that the CR3 Uprate project cannot be successfully completed and NRC
 5 approval of the EPU LAR obtained at a reasonable cost to PEF and its customers.

6
 7 **Q. Does Audit Staff question the total project costs of the CR3 Uprate project?**

8 A. No. Audit Staff does not question the increase in the total project costs during the
 9 course of the project. They do note that the original project cost estimate was
 10 \$426.6 million, which has now increased to \$479.4 million, or a 12 % increase.
 11 (Staff Audit Report, p. 44).

12
 13 **Q. Is this increase in line with industry standards for projects of this type?**

14 A. Yes. This increase in costs is within industry standard for uprates, especially
 15 considering the acknowledged technical complexities of PEF's EPU. As Jacobs
 16 notes in his direct testimony regarding the FPL planned power uprates, PEF's
 17 CR3 Uprate project costs compare favorably to FPL's project costs on a dollar per
 18 Kw basis. (Jacobs FPL direct testimony, p. 8, L. 6-7).

19
 20 **Q. Does this conclude your testimony?**

21 A. Yes, it does.

1 Q. HOW MUCH OF THE CR3 EPU BUDGET WILL HAVE BEEN SPENT
2 BEFORE THE COMPANY KNOWS WHETHER OR NOT THE NRC WILL
3 ISSUE A LICENSE FOR THE FULL UPRATE REACTOR POWER?

4 A. Assuming they will know the results of the NRC review by the end of 2010,
5 approximately 80% of the money will have been spent before it is known if the NRC
6 will grant the full requested power uprate.

7

8 Q. COULD THE COMPANY HAVE REDUCED THE RISK BY RESOLVING
9 THE NRC LICENSING ISSUES BEFORE SPENDING THE LARGE SUMS
10 TO MODIFY THE SECONDARY PLANT?

11 A. Yes. As I stated above, if they had been able to resolve the high risk issues in
12 accordance with the schedule given to the NRC on May 19, 2008.

13

14 Q. WHAT ARE YOUR CONCLUSIONS CONCERNING THE EPU PROJECT?

15 A. Proceeding with phase 2 without completing the NRC review of what PEF
16 themselves have said are high risk issues is comparable to building almost everything
17 in a nuclear power plant except the reactor before knowing if the NRC will approve
18 building the reactor. PEF has not carried its burden of showing that it has accurately
19 assessed the possibility that the NRC will not approve of the full power uprate
20 requested. A lower risk option would have been to receive reasonable assurance of
21 NRC approval prior to spending large sums of money in the implementation of the
22 phase 2 uprate.

23 V. CONCLUSIONS AND RECOMMENDATIONS

24 Q. WHAT ARE YOUR CONCLUSIONS CONCERNING PEF'S FILING IN THIS
25 DOCKET?

1 **Q. Does Dr. Jacobs express an opinion that any cost incurred by PEF for**
2 **the CR3 Uprate Project for 2008 is imprudent?**

3 **A.**No, he does not.

4
5 **Q. Given his recommendation, does Jacobs identify any specific cost that**
6 **the Company should not have incurred for the CR3 Uprate Project?**

7 **A.**No, he does not identify a specific amount of cost that the Company
8 should not have incurred.

9
10 **Q. Is the Company appropriately managing the Uprate project?**

11 **A.**Yes. PEF's approach is consistent with the industry approach to EPU
12 projects. The NRC has reviewed and approved several other EPU license
13 amendment requests at other nuclear plants. The NRC therefore has a
14 very developed set of rules and procedures for the submittal, review, and
15 approval of power uprates like the CR3 Uprate Project. PEF has benefited
16 from lessons learned by these other EPU requests as well as from our
17 internal lessons learned from the EPU at the Brunswick Nuclear Plant.
18 PEF also fully understands the framework in which the NRC reviews
19 these EPU requests and therefore has been able to craft the CR3 Uprate
20 LAR to meet the expectations of the NRC.

21 The engineering studies to support the EPU and the LAR are
22 extensive and take over two years to finalize. Because much of the details
23 for each of the modifications to the plant and equipment have to be

1 finalized in order to complete the engineering analyses for the LAR, these
2 costs are incurred as part of the LAR preparation. A significant portion of
3 the total uprate project costs would therefore have to be spent in order to
4 support the LAR submittal anyway. This is typical of our experience with
5 the CR3 Uprate Project, the Brunswick EPU, and the industry's
6 experience with uprate projects.

7
8 **Q. When will the Company submit the LAR for the CR3 EPU to the**
9 **NRC for approval?**

10 **A.** PEF is currently finalizing its LAR submittal and plans to submit it to the
11 NRC in early 2010. NRC approval is expected in mid-2011, before the
12 start of the 2011 outage.

13
14 **Q. Does PEF have reasonable assurances that its LAR will be approved**
15 **by the NRC?**

16 **A.** Yes, it does. Jacobs asserts that reasonable assurance of NRC approval
17 exists when the Company files its LAR, looks at the type of Requests for
18 Additional Information ("RAIs") it is getting, and has discussions with the
19 NRC to get a feel for if it is being accepted by the NRC. See Exhibit No.
20 ____ (JF-1) (Jacobs Dep. Excerpt, p. 166). To the extent possible, we are
21 doing exactly that.

22 PEF regularly interacts with the NRC regarding the preparation of
23 its LAR for the CR3 Uprate Project. Rather than choose a course of action

1 in a vacuum, without input from the NRC, PEF is more proactive in
2 raising and discussing issues and solutions with the NRC. Even when
3 PEF is fairly certain about how an issue should be resolved, we discuss it
4 with the NRC in an abundance of caution. As PEF works through these
5 issues, and learns the NRC's preferences with respect to the solution, we
6 gain more confidence that our ultimate LAR submittal will be complete
7 and acceptable to the NRC.

8 PEF, therefore, is communicating with the NRC at each stage of
9 developing its LAR, before it files its LAR. PEF regularly contacts and
10 meets with the NRC to discuss its engineering analyses and solutions for
11 the Uprate Project that will be supplied in its LAR when filed with the
12 NRC. As a result, PEF has received the "reasonable assurance" that Mr.
13 Jacobs describes that its LAR submission will be acceptable and will be on
14 track to be timely approved.

15
16 **Q. Is there any other reason for PEF to be confident that the NRC will**
17 **approve its LAR?**

18 **A.** Yes. In addition to the industry uprate precedent and our company uprate
19 experience, we feel our internal review process and completed engineering
20 analysis position us well to have our EPU approved. We recognize that as
21 the first B&W plant to apply for an EPU we must produce a high quality
22 submittal. We have added additional levels of review to ensure the quality
23 of the submittal and to reduce the risk of delays in the NRC's review.

1 Specifically, PEF has implemented an Independent Review for the LAR.
2 The purpose of this review is to ensure that experienced individuals
3 review the draft LAR for completeness, correctness, clarity, and
4 conformance with industry best practices. The review will also ensure that
5 the LAR contains sufficient detail to allow the NRC to independently
6 conclude the acceptability of the CR3 EPU. PEF has brought in Progress
7 Energy employees from the Company's Brunswick plant and corporate
8 offices, as well as outside contractors, to conduct this Independent
9 Review.

10 Further, we have completed the primary safety and transient
11 analysis and the results have been satisfactory. We can demonstrate
12 compliance with all regulatory requirements, we have generally reduced
13 operator burdens, and we have carefully monitored the experience of other
14 plants that have applied for EPU's. As I explained above, we have also
15 been communicating with the NRC frequently. We have purposely visited
16 with their technical staff face to face regarding our application. Indeed,
17 PEF has conducted three pre-application meetings with the NRC to be as
18 transparent as possible.

19
20 **Q. Is there any reason for concern simply because the CR3 Uprate is the**
21 **largest uprate of a Babcock & Wilcox plant?**

22 **A.** No. While Dr. Jacobs is correct that the CR3 Uprate project will be the
23 largest uprate at a B&W plant, there is nothing particular about the B&W

Docket 100009
Progress Energy Florida
Exhibit No. ____ (JF-5)

Pages 1 through 10 are redacted in their entirety

Docket 100009
Progress Energy Florida
Exhibit No. ____ (JF-6)

Pages 1 through 8 are redacted in their entirety

Docket 100009
Progress Energy Florida
Exhibit No. ____ (JF-7)

Pages 1 through 91 are redacted in their entirety

Docket 100009
Progress Energy Florida
Exhibit No. ____ (JF-8)

Pages 1 through 8 are redacted in their entirety



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

April 13, 2009

LICENSEE: Florida Power Corporation
FACILITY: Crystal River, Unit 3
SUBJECT: SUMMARY OF APRIL 1, 2009, MEETING WITH PROGRESS ENERGY TO DISCUSS PLANNED EXTENDED POWER UPRATE AT CRYSTAL RIVER, UNIT 3 (TAC NO. MD8530)

On April 1, 2009, the Nuclear Regulatory Commission (NRC) staff conducted a Category 1 public meeting with Florida Power Corporation (the licensee), now doing business as Progress Energy and its contractor, AREVA, at NRC Headquarters, Two White Flint North, 11545 Rockville Pike, Rockville, Maryland. The purpose of the meeting was to discuss the submittal of an extended power uprate (EPU) application for Crystal River, Unit 3 (CR-3) that is currently planned to be submitted in 2009. The licensee is planning to implement the EPU during the plant 2011 refueling outage (17R), which would raise its rated thermal power from 2609 Mwt to 3014 Mwt (~15.5 percent). This project will position CR-3 as the first Babcock & Wilcox plant to operate at over 3000 Mwt. A list of attendees is enclosed. The licensee's slide presentation may be accessed from the NRC's Agencywide Documents Access and Management System Accession No. ML090910729.

DISCUSSION

During the meeting, the licensee provided an overview of the CR-3 and its EPU background, such as, implemented power uprates over the years of CR-3 operation including measurement uncertainty recapture during the 2007 refueling outage, planned balance of plant efficiency modification that will increase electrical power by 0.9 percent is planned for installation during the 2009 refueling outage, and scope of modifications that will be performed in support of the EPU during 17R.

During the meeting, the Progress Energy/AREVA staff and the NRC staff discussed the upcoming EPU amendment's format, environmental report, technical details, linked/related amendments, and the EPU and its linked licensing actions schedule. The licensee explained that the format and content of the EPU submittal will be consistent with the RS-001, Revision 0, "Review Standard for Extended Power Uprates," using R.E. Ginna Nuclear Power Plant as model. The CR-3 EPU application will be also consistent with Nuclear Energy Institute (NEI) guidance NEI-08-10. The EPU environmental report format will be consistent with Browns Ferry's and Susquehanna's submittals, and it will use, to the extent possible, the CR-3's license renewal environmental report.

The licensee is planning to commence plant modifications for power uprate during the 2009 refueling outage and finishing EPU-related modifications in the 2011 refueling outage. In addition, steam generator replacement will take place during the 2009 refueling outage. During the meeting the licensee explained that the EPU technical details were developed from following up on aspects discussed in prior meetings and from addressing the emergent issues. Further, the licensee discussed the basis for inclusion of the following issues: low pressure injection system cross-tie modification, enhanced secondary depressurization, margin management,

- 2 -

operational and post modification testing, large transient testing, dose related aspects, environmental qualification evaluation, grid stability, loss of coolant accident (LOCA) status, and emergency feedwater wetting issue. During the discussions, the NRC staff advised the licensee to provide submittals that contained all necessary information to perform the required reviews. The NRC staff asked the licensee about the technical details and justifications that will be provided in the EPU application. Specifically, the NRC staff advised the licensee to provide: justification for the manual action related to the enhanced secondary depressurization, detailed information on the large transient testing, updates to the meteorological data and accident dose calculations, and supporting documents related to LOCA. The NRC staff also asked the licensee to include information in the EPU application for validating anticipated transient without scram setpoints. Regarding the environmental qualification (EQ) evaluation, the NRC staff emphasized providing supporting technical details for the equipment that will be added or removed from the plant EQ list because of the EPU conditions at CR-3.

On February 26, 2009, the licensee submitted two EPU-related amendments; the methodology of rod ejection accident analysis under EPU and an application to adopt Technical Specification Task Force (TSTF) Traveler, TSTF-490, Revision 0, "Deletion of E Bar Definition and Revision to RCS [Reactor Coolant System] Specific Activity Technical Specification." The NRC staff is performing a detailed review of the first application. However, regarding the adoption of TSTF-490, the NRC staff identified that the application did not provide sufficient technical information to enable the NRC to complete its review. During the meeting, the licensee informed the NRC of its intention to withdraw this application, and resubmit it, either in parallel with the EPU application or after the EPU amendment approval. Regarding the EPU licensing amendment request, the licensee is planning to submit its application by September 25, 2009.

Presently, the NRC staff and the licensee are not planning any additional pre-application meetings regarding the upcoming EPU application. Therefore, this concludes activities related to TAC No. MD8530. A new TAC will be opened, if the need for further discussions of some of the EPU-related licensing activities (e.g., large transient testing) is identified.

Members of the public were invited and in attendance. Public Meeting Feedback forms were not received.

Please direct any inquiries to me at 301-415-1447 or farideh.saba@nrc.gov.

Farideh E Saba

Farideh Saba, Senior Project Manager
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-302

Enclosure: List of Attendees

cc w/enci: Distribution via Listserv

List of Attendees
U. S. Nuclear Regulatory Commission
Public Meeting with Progress Energy/AREVA
Regarding Crystal River, Unit 3 Extended Power Uprate
April 1, 2009

U. S. NUCLEAR REGULATORY COMMISSION

T. Alexion	G. Lapinsky
T. Attard	A. Mendiola
G. Armstrong	A. Obodoako
M. Blumberg	J. Paige
T. Boyce	Jay Patel
L. Brown	Jigar Patel
G. Cranston	N. Patel
H. Garg	R. Pederson
V. Goel	R. Pettis
W. Jessup	F. Saba
S. Jones	C. Schulten
R. Kuntz	R. Taylor

PROGRESS ENERGY

E. Avella
J. Franke
B. McCabe
D. Porter
L. Wells
D. Westcott
K. Wilson

AREVA NP, INC.

J. Seals

Enclosure