

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

**DOCKET NO. 110009-EI
FLORIDA POWER & LIGHT COMPANY**

**IN RE: NUCLEAR POWER PLANT COST RECOVERY AMOUNT
TO BE RECOVERED DURING THE PERIOD
JANUARY - DECEMBER 2012**

REBUTTAL TESTIMONY OF:

WILLIAM B. DERRICKSON

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5 **JULY 25, 2011**

6
7 **Q. Please state your name and business address.**

8 A. My name is William B. Derrickson. My business address is 1813 Eagles Glen
9 Cove, Austin, Texas 78732.

10 **Q. Have you previously submitted direct testimony in this proceeding?**

11 A. Yes.

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

13 A. The purpose of my testimony is to address the work stoppages that occurred at
14 Turkey Point Unit 3 and St. Lucie Unit 2 in 2010 and early 2011. I also
15 briefly respond to Witness Jacobs's concerns related to the Company's 2007
16 decision to expedite the Extended Power Uprate (EPU) project.

17 **Q. Please summarize your rebuttal testimony.**

18 A. I reviewed the three work stoppages that occurred at Turkey Point and St.
19 Lucie Unit 2 in late 2010 and early 2011. It is my opinion that FPL acted
20 prudently by selecting quality contractors for the work, having proper
21 procedures and supervision in place, and managing the contracts well.
22 Nevertheless, it is a fact that on large construction projects such as the EPU,
23 problems do happen, despite management having taken reasonable and

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1 prudent actions. In the above three situations, FPL management performed
2 well by stopping work to protect human life and/or plant equipment, and
3 determine the root cause of the problem. Very thorough analyses were done
4 which identified the root cause of the problems and produced action plans to
5 remedy each situation as well as prevent future occurrences. In all three cases
6 FPL acted prudently prior to the work stoppage, then responded decisively
7 and took responsible action.

8 **Q. Please describe a “work stoppage” as that term is being used for purposes**
9 **of the EPU project.**

10 A. A work stoppage is the suspension of all work in a given physical area of a
11 plant or a project. It can last from a few minutes to months depending on the
12 situation. Typically work is halted to address personnel safety or to protect
13 plant equipment, allow a root cause analysis of the situation to be addressed,
14 take action to correct the root cause of the situation, and to develop a plan to
15 prevent recurrence.

16 **Q. Are work stoppages appropriate during the course of a project such as**
17 **the EPU?**

18 A. Work stoppages are not only appropriate, they are necessary to ensure safety
19 and reemphasize training, and it is not out of the ordinary that such work
20 stoppages would occur during a major construction project at a nuclear power
21 plant. In fact, to not stop work when conditions exist that are either unsafe for
22 workers or that could potentially damage plant equipment would be
23 imprudent. As is described below, analyses of events which necessitated the

1 work stoppages at both Turkey Point and St. Lucie Unit 2 led to procedure
2 changes and additional training, both of which will reduce the probability of
3 future similar events.

4 **Q. Does the fact that a work stoppage occurred indicate FPL was imprudent**
5 **in any respect?**

6 A. No. FPL hired competent contractors, Siemens Energy, Inc. (Siemens) and
7 Bechtel Power Corporation (Bechtel), both of whom have extensive
8 experience and are recognized world-wide as experts in the energy field.
9 Additionally, FPL has very specific contracts with its contractors containing
10 requirements for safety, quality assurance, and reporting. FPL has EPU staff
11 at each site to provide oversight and assure that the work is being performed
12 according to plan. Despite the contractor's extensive experience and despite
13 significant quality assurance requirements which exist in the nuclear industry,
14 mistakes do happen.

15 **Q. Please explain your review of the work stoppage that occurred at Turkey**
16 **Point Unit 3 in October 2010.**

17 A. At Turkey Point Unit 3 work was stopped on October 16, 2010 due to a
18 Siemens electrician's failure to connect cables in a 480 volt main transformer
19 control cabinet, despite the work having been reported as complete, creating
20 an unsafe situation. The work stoppage lasted for three (3) days.

21

22 I reviewed the action request (AR) in which the problem is stated, analyzed,
23 records searched for previous similar occurrences, the root causes as well as

1 contributory causes identified, and an action plan developed to prevent
2 recurrence. The record review as documented in the AR did not reveal any
3 similar situations from October 15, 2007 through November 11, 2010, thus
4 EPU management had no prior basis for concern.

5

6 One action immediately taken was to stop all work on the main transformer
7 until it was determined that the action plan was completed. The action plan
8 included procedure revisions and additional training. In my opinion the EPU
9 management performed in a commendable manner as personnel safety should
10 always come first.

11 **Q. Was it appropriate for FPL to hire Siemens to perform this type of work**
12 **on the unit?**

13 A. As a world leading company in the manufacturing and installation of turbine-
14 generators and associated auxiliary equipment, Siemens was the appropriate
15 choice for this work. Additionally, by 2010 Siemens had performed turbine-
16 generator uprate work on seventeen (17) units, and since it had purchased the
17 non-nuclear business of Westinghouse in 1997, it was and is the original
18 equipment manufacturer (OEM) of the Turkey Point main turbine-generators.

19 **Q. Did FPL provide adequate training and oversight?**

20 A. Yes. FPL hires contractors for their expertise in performing work that FPL
21 does not normally do. The work scope, as well as the interface between FPL
22 and a contractor, is defined in the contract between the parties. Since the
23 uprate work is being performed in operating nuclear plants, FPL's primary

1 mission is to make sure that the job is safe for plant personnel, plant license
2 conditions are being adhered to, that the plant is not damaged, and that the
3 work is accomplished as planned. The EPU project has a suite of procedures
4 that spell out the EPU management responsibilities. I have reviewed the
5 Extended Power Uprate Project Instruction (EPPI) procedures and I find them
6 to be thorough and comprehensive.

7
8 Additionally from both a warranty and bargaining unit perspective, FPL, or
9 any client, must exercise restraint in its interaction with workers of a
10 contractor. Any direction given to a contractor worker could jeopardize any
11 warranty for the specific work involved.

12
13 On my tours of both Turkey Point and St. Lucie in 2010 and 2011 and in
14 discussions with EPU management I observed what I believe is good
15 understanding of the mission and roles and responsibilities of all EPU
16 participants. This is very important as it was cited as one of the ingredients
17 for a successful project by the St. Lucie Unit 2 project team and a criterion
18 that I used to evaluate the EPU project in my pre-filed testimony.

19 **Q. Was a work stoppage an appropriate response to the human performance**
20 **event that occurred?**

21 A. Yes. Stopping work is prudent when personnel safety is at risk. No one's life
22 should be in jeopardy performing relatively ordinary construction work.

1 **Q. Please explain your review of the work stoppage that occurred at Turkey**
2 **Point Unit 3 in November 2010.**

3 A. On November 1, 2010 an electrician employed by Bechtel accidentally cut
4 into a Turbine Plant Cooling Water System (TPCW) pipe with a grinding
5 wheel. The affected TPCW pipe was not in service at the time so no serious
6 personnel safety threat existed. Had the TPCW pipe been in service there
7 could have been serious safety consequences. To prevent future occurrences
8 EPU management directed a work stoppage to provide human performance
9 training for craftsmen and supervisors. This work stoppage lasted for fifteen
10 (15) days. This event is discussed in a condition report (CR). The conduit
11 support weld on which the electrician was grinding and the TPCW pipe were
12 very close together as is the case with much equipment at Turkey Point. The
13 CR deals with this situation and prescribes corrective action.

14
15 As was the case with the October 16 stoppage, it is my opinion that FPL
16 management took the correct action to prevent what could be a serious
17 situation.

18 **Q. Was it appropriate for FPL to hire Bechtel to perform this type of work**
19 **on the unit?**

20 A. Yes. As with Siemens, Bechtel is a world leading company in the design and
21 construction of nuclear power plants. Approximately half of the nuclear
22 power plants in the United States were designed and constructed by Bechtel.
23 Bechtel also has extensive experience with retrofit work in nuclear power

1 plants. Such work began about thirty five years ago when the Nuclear
2 Regulatory Commission was formed and its issuance of new regulatory
3 changes resulted in significant plant modifications. As a result Bechtel was a
4 good choice for the Turkey Point work.

5 **Q. Did FPL provide adequate training and oversight?**

6 A. Yes. As described above, the EPU project has a suite of procedures that spell
7 out EPU management responsibilities. I have reviewed the EPPI procedures
8 and I find them to be thorough and comprehensive.

9 **Q. Was a work stoppage an appropriate response to the human performance
10 event that occurred on November 1, 2010?**

11 A. Yes. The safety of personnel could have been at risk. In my opinion EPU
12 management had no choice but to suspend work until it was satisfied that the
13 cause of the problem had been identified and actions taken to prevent its
14 recurrence.

15 **Q. Please describe your review of the work stoppage that occurred at St.
16 Lucie Unit 2 in January 2011.**

17 A. During a Loop test of the Unit 2 generator stator core, hot spots were
18 identified in the stator core iron. A determination was made to remove the
19 iron to correct the hot spots. On February 12, 2011, during the process of un-
20 stacking the core iron to correct the hot spots, Siemens found a core iron
21 alignment pin approximately ten inches inside the stator core. Electrical
22 testing of the stator core by the vendor with the pin in place resulted in
23 damage to a section of the stator core.

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A root cause evaluation was jointly performed by EPU management and Siemens and was documented in a CR, which recommended changes to processes and procedures to prevent future occurrences. This was very important because the generators at Turkey Point 3 and 4 and St. Lucie Unit 1 remain to be re-wound.

The analysis documented in the CR identified areas for improvement in Siemens' procedures, especially tool control, and accountability for devices such as alignment pins. As the problem that occurred at St. Lucie Unit 2 apparently had not happened before in Siemens experience, Siemens management apparently believed that their procedures were adequate, and FPL had no basis to question them. After the incident, however, Siemens management took decisive action to change its procedures, and FPL now has inspection points as an added assurance that this will not happen again.

Q. Was it appropriate for FPL to hire Siemens to perform this type of work on the unit?

A. As with Turkey Point, FPL hired the OEM to modify the main generator to support the EPU project. One of the main modifications is rewinding the generator with new wire coils to handle the higher output. This type of work is normally done in a factory under controlled conditions, and it is not the type of work for which electric utility organizations are skilled and trained. The reason for performing the rewind at the site is that the other choices, sending

1 the generator to the factory or buying a new one, are much more expensive
2 and require longer outages.

3
4 By the time the St. Lucie work began in January 2011, Siemens had
5 completed over twenty (20) on-site generator rewinds, thus there was no
6 reason for FPL to question Siemens' ability to successfully complete the work
7 at St. Lucie. Based on the above the decision to hire Siemens to do the work
8 at the site was the best choice.

9 **Q. Did FPL provide adequate training and oversight?**

10 A. Yes. As described above, the EPU project has a suite of procedures that spell
11 out the EPU management responsibilities. I have reviewed the EPPI
12 procedures and I find them to be thorough and comprehensive.

13 **Q. Was a work stoppage an appropriate response to the human performance
14 event that occurred?**

15 A. Yes. In order to prevent additional damage to equipment or possibly workers,
16 there was really no choice but to suspend work. In cases such as this, it is
17 necessary to get to the cause of the problem, address it, revise processes and
18 procedures, and implement training, all to prevent recurrence. That was the
19 prudent thing to do.

20 **Q. With respect to Witness Jacobs's testimony, how do you respond to his
21 position related to the 2007 decision to expedite the EPU project?**

22 A. Witness Jacobs seems only to be stating the obvious implications of an
23 expedited project approach. "Fast-tracking" is an approach used to manage a

1 project when it is determined that the desired result is best achieved in an
2 expedited fashion. Because the project milestones are planned and executed
3 in a shorter time frame, additional project risks are identified early in the
4 planning process and compensatory actions are established to ensure
5 successful completion of the project. For example, additional oversight or
6 more frequent schedule or cost review meetings with senior management may
7 be implemented to ensure that the key project management areas (e.g., scope,
8 cost, schedule, quality, risk, etc.) are progressing as expected. It should not be
9 surprising that information is learned and complications or risks are identified
10 as the project progresses. In this case, the benefits to customers of putting in
11 service additional low cost, zero emission, base load capacity on an expedited
12 time frame, and the cost savings to customers in completing the project in an
13 expedited timeframe, warranted the expedited approach.

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

15 A. Yes.