

REVIEW OF
**FLORIDA POWER & LIGHT
COMPANY'S
PROJECT MANAGEMENT
INTERNAL CONTROLS
FOR
NUCLEAR PLANT UPRATE AND
CONSTRUCTION PROJECTS**

J U N E 2 0 1 3

BY AUTHORITY OF
THE FLORIDA PUBLIC SERVICE COMMISSION
OFFICE OF AUDITING AND PERFORMANCE ANALYSIS

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THE STATE OF FLORIDA
PUBLIC SERVICE COMMISSION
OFFICE OF AUDITING AND PERFORMANCE ANALYSIS**

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1.0 EXECUTIVE SUMMARY

1.1 AT A GLANCE

NEW NUCLEAR PROJECT (NNP), TURKEY POINT 6&7

- ◆ Cost estimate range is slightly lower this year – \$12.67 billion to \$18.49 billion
- ◆ Unit 6 and Unit 7 construction completion dates are unchanged: 2021 and 2022
- ◆ Commercial operation dates are unchanged: 2022 and 2023
- ◆ FPL annual analyses conclude the project remains cost-effective in 5 of 7 scenarios
- ◆ NRC disputed some FPL COLA analyses in 2012; halted parts of the COLA review
- ◆ A revised NRC COLA Review Schedule is expected in June 2013
- ◆ Draft Environmental Impact Statement for land exchange expected in June 2013
- ◆ Site Certification hearings scheduled for July – August 2013
- ◆ Long lead forging agreement expires in October 2013; FPL expects to renew
- ◆ No Turkey Point 6&7 construction contract yet. Target for signing is late-2014

EXTENDED POWER UPRATE PROJECT (EPU)

- ◆ NRC approves all License Amendment Requests (LAR) in 2012
- ◆ All outages have been successfully completed
- ◆ St. Lucie (PSL) units 1 & 2 and Turkey Point (PTN) units 3 & 4 are on line
- ◆ End-of-project cost estimate rises to \$3.398 billion
- ◆ Project close out target date revised to December 2013

1.2 AUDIT EXECUTION

1.2.1 PURPOSE AND OBJECTIVE

The Office of Auditing and Performance Analysis performed the sixth annual review of internal controls and management oversight of nuclear projects underway at Florida Power & Light Company (FPL or the company). This review examines the adequacy of project management and internal controls for FPL's New Nuclear Project (NNP) and Extended Power Uprate (EPU) organizations.

The primary objective is to provide an independent account of project activities and to evaluate internal controls used on these projects. Information in this report may be used by the Commission to assess the reasonableness of FPL cost-recovery requests.

FPSC audit staff published previous reports in 2008 through 2012, each entitled *Review of Florida Power & Light's Project Management Internal Controls for Nuclear Plant Uprate and Construction Projects*. These reports are available electronically at:

- ◆ <http://www.floridapsc.com/publications/pdf/electricgas/FPLNuclear2008.pdf>
- ◆ <http://www.floridapsc.com/publications/pdf/electricgas/FPLNuclear2009.pdf>
- ◆ <http://www.floridapsc.com/publications/pdf/electricgas/FPLNuclear2010.pdf>
- ◆ <http://www.floridapsc.com/publications/pdf/electricgas/FPLNuclear2011.pdf>
- ◆ <http://www.floridapsc.com/publications/pdf/electricgas/FPLNuclear2012.pdf>

1.2.2 SCOPE

The period of this annual review is January 2012 to May 2013. Staff examined the adequacy of FPL project management and internal controls for uprate and new nuclear construction projects. The internal controls assessed were related to the following key areas of project activity:

- ◆ Planning
- ◆ Management and organization
- ◆ Cost and schedule controls
- ◆ Contractor selection and management
- ◆ Auditing and quality assurance

Well-conceived, comprehensive controls cannot exist in a vacuum. Ineffective unless emphasized and embraced in an organization, internal controls leverage the challenges of risk management and decision making.

Risks must also be quickly and accurately identified, with safeguards devised to prevent, mitigate, or eliminate them. Prudent decision making results from well-defined processes addressing risks, needs, and capabilities. Adherence to clear written procedures, effective communication, and vigilant oversight, combined with auditing and quality assurance, are essential to ensure that project decisions and actions are prudent.

This Commission audit staff review places primary importance on internal controls as expressed in the Institute of Internal Auditors *Standards for the Professional Practice of Internal Auditing* and in the *Internal Control - Integrated Framework* developed by the Committee of Sponsoring Organizations (COSO) of the Treadway Commission. According to COSO, an internal control should consist of five interrelated components:

- ◆ Control environment
- ◆ Risk assessment
- ◆ Control activities
- ◆ Information and communication
- ◆ Monitoring

When looking at the effectiveness and efficiency of operations, the reliability of financial reporting, and compliance with applicable laws and regulations, all five components must be present and functioning well to conclude that internal controls are effective. This report will document the existence of each of these five components for FPL project management.

1.2.3 METHODOLOGY

The initial planning, research, and data collection for the annual internal controls review occurred in January through March 2013. A staff visit to the St. Lucie and Turkey Point nuclear plants took place in January 2013. Interviews with new nuclear and uprate leadership at the FPL corporate offices in Juno Beach occurred in April 2013.

Staff conducted additional data collection, sampling, analysis, and production of a draft report from January to late May 2013. Audit staff also reviewed testimony, discovery, and other filings in this and related dockets.

A large volume of information was collected and analyzed. Information collected from FPL included the following categories:

- ◆ Policies and procedures
- ◆ Organizational charts
- ◆ Project timelines
- ◆ Vendor and contract updates
- ◆ Vendor invoices
- ◆ Scope analysis studies by FPL and consultants
- ◆ Internal and external audit reports
- ◆ Quality control reviews

1.3 OVERVIEW

1.3.1 NEW NUCLEAR PROJECT

FPL states that the company remains committed to pursuing the option to build two new AP1000 nuclear reactors, designated Turkey Point Units 6&7. FPL describes its planning and preparation process as a deliberate and incremental project management approach.

Project timeline endpoints remain unchanged from a year ago and FPL believes that completion of Unit 6 in 2021 and Unit 7 in 2022 is achievable with the existing schedule. The start up for each unit follows a year later, in 2022 and 2023 respectively.

The current FPL focus and the project's critical path is licensing. The FPL near term focus is achieving NRC approval of the COLA. Under the current project schedule, FPL anticipates receiving COLA approval in late 2014. **Exhibit 1** shows the current project timeline.

TURKEY POINT 6 & 7 ESTIMATED TIMELINE																
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Site Certification																
Development	█	█														
Completeness		█	█	█												
Land Use Hearing							█									
Substantive Review			█	█	█	█										
Site Certification Order							█									
Army Corps of Engineers Application																
Development	█	█														
Completeness		█	█													
Review			█	█	█	█	█									
Permit Issued							█									
Combined Operating License Application																
Development	█	█														
Initial Reviews		█	█													
Safety Review			█	█	█	█										
Environmental Review			█	█	█	█										
ASLB Hearing							█									
License Issued							█									
Construction																
Site Preparation								█	█	█	█	█	█			
Long Lead Procurement								█	█							
Construction, Unit 6										█	█	█	█	█	█	█
Testing & Start-Up, Unit 6															█	█
Construction, Unit 7											█	█	█	█	█	█
Testing & Start-Up, Unit 7																█

EXHIBIT 1

Source: Document Request 1.32

The Turkey Point 6&7 project cost estimate range is slightly lower than last year, in a range from \$12.67 billion to \$18.49 billion. Feasibility is unchanged from a year ago, the FPL analyses showing the project as cost effective in five of seven scenarios. **Exhibit 2** shows the project cost estimates over time, from 2007 to date.

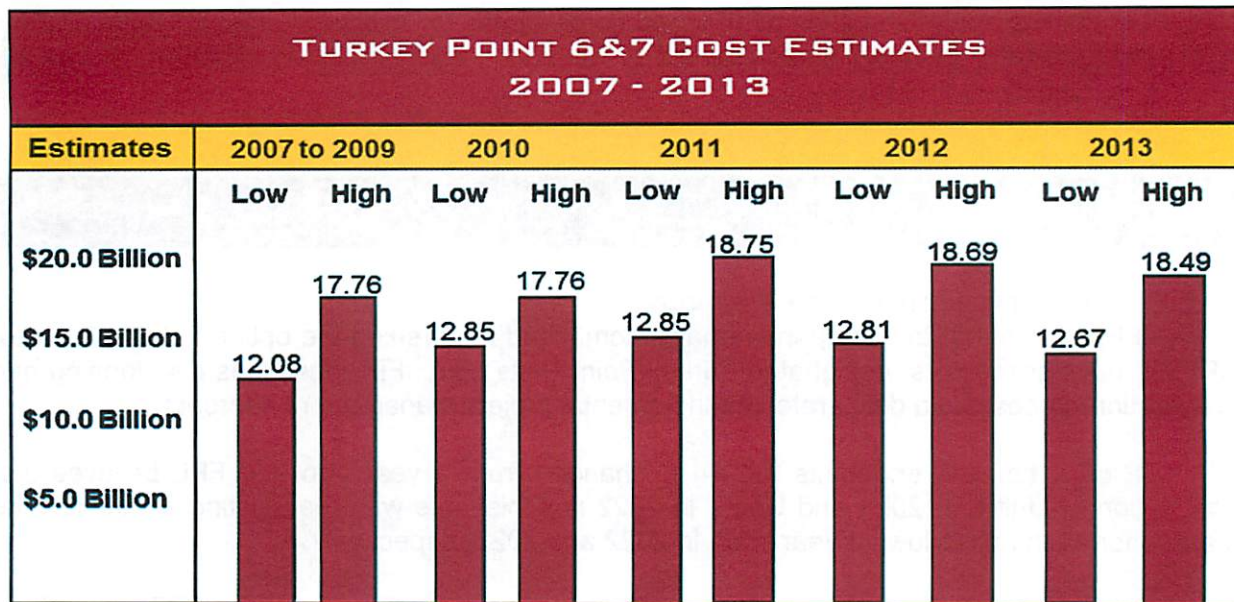


EXHIBIT 2

Source: Document Request 1.34

The FPL annual project cost estimate for 2012 was \$34.9 million. However, actual expenditures only totaled \$29.6 million, \$5.3 million below the FPL Nuclear Cost Recovery filing. The variance is largely due to a shift of Land Use and SCA hearings from 2012 to 2013.

Due to budget constraint pressures and possible regulatory changes resulting from the 2011 Fukushima incident, the NRC is reevaluating its COLA Review Schedule. Release of a revised schedule is expected this summer. FPL will conduct a review of the new NRC COLA Review Schedule and, if necessary, revise the Turkey Point 6&7 project schedule. FPL has not set a target date for completing its review and publication of any necessary project schedule revisions. Staff believes both actions will be completed this year and that changes to the NRC COLA Review Schedule could delay the Turkey Point 6&7 project.

In May 2012, the NRC identified two significant issues impacting its ability to complete the COLA safety and environmental reviews. The agency disputed FPL analyses for (1) geology, seismology, and geotechnical engineering and (2) alternative sites. The NRC ceased review of those areas but proceeded with all others. FPL was directed to conduct an internal quality assurance audit. The company hired a third party contractor with subject matter expertise to assist. FPL shared the audit findings and corrective action plans with the NRC. The incomplete or flawed analyses were corrected, with all actions completed by the end of 2012. Potential impacts to project schedule and cost are currently unknown.

In June 2012, the NRC was ordered by the US Court of Appeals to complete an environmental impact statement (EIS) and revised waste confidence decision and rule on the temporary storage of spent nuclear fuel. The NRC acknowledged this as an agency priority and directed its staff to complete this work within 24 months. In August 2012, the NRC halted issuing licenses for new reactors until waste confidence issues are resolved. Staff believes that

lack of resolution by the mid-2014 deadline could delay approval of the FPL COLA. Contents of the EIS and/or revisions to existing NRC waste storage rules could also negatively impact the Turkey Point 6&7 project schedule.

At the federal level during 2012, FPL continued to respond to NRC requests for additional information and updated its COLA with Revision 4 in December. A Revision 5 is being prepared and the company has set a late-2013 target date for submission to the NRC.

At the state level, the Site Certification Application (SCA) process continued through 2012 and to date in 2013. Favorable Plant Agency and Land Use Determination reports have been received. Following receipt of final Miami-Dade County approvals and reports in 2013, the current FPL focus centers on SCA hearing preparation. SCA hearings are scheduled to begin in July. However, uncertainty over the timing of approvals still exists and staff believes it possible that additional schedule shift may occur.

FPL is still without a construction contract but believes that schedule and licensing uncertainty make continued delay of a contract decision the best course of action. Whether FPL will choose a single engineering, procurement, and construction (EPC) contract or separate EP and C contracts remains undecided. Current project schedule targets awarding an EP contract by the end of September 2014 and the C portion by April 2015. If FPL decides to use an EPC contract, the company states that it intends it to be in place by September 2014. FPL also states that preliminary discussions have been conducted with potential prime contractors but that no substantive talks have occurred. Staff believes the window of opportunity for a contract is still relatively distant but cannot be delayed beyond late 2014 without negative project schedule impact.

FPL again extended its long lead forging agreement with Westinghouse. The current extension expires at the end of October 2013 and FPL will seek a further extension. Forfeiture by FPL could cost the company up to \$10.8 million in lost reservation fees. Staff believes that, absent changes to the current project schedule, FPL must negotiate a binding agreement no later than 2015 to avoid in-service date slippage.

The bulk of project execution, construction, and expenditures lie beyond 2014. Overall project schedule remains unchanged, with the Turkey Point 6&7 commercial operation dates still targeted for 2022 and 2023, respectively.

Staff believes that FPL employs internal controls, risk evaluation, management oversight, and regular reporting requirements that adequately address project schedule, budget, costs, vendor performance, and risks. All controls will likely need to evolve as the project matures, moves into a robust construction phase, and requirements change.

1.3.2 EXTENDED POWER UPRATE PROJECT

In January 2012, EPU project management implemented schedule revisions for the PSL-2 and PTN-3 final outages.

The EPU project team continued to receive final NRC EPU-LAR approvals, and complete EPU project outage construction for the remaining four outages. FPL experienced additional LAR license engineering and support costs, from changing NRC requirements and the project design modifications required by them. Construction and implementation costs also increased, as final designs were implemented and outages were begun. The timeline for the EPU project is shown in **Exhibit 3**.

EPU PROJECT SCHEDULE							
Current Timeline	2007	2008	2009	2010	2011	2012	2013
Need Determination	◆						
LAR Analysis		—————					
LAR RAIs & NRC Reviews			—————				
Long Lead Material		—————					
Engineering Design		—————					
Outage & Start-Up				—————			
Project Close out						—————	

EXHIBIT 3

Source: Document Request 3.1

In May 2012, FPL revised the non-binding cost estimate upward to a range between \$2.95 billion and \$3.15 billion. The estimate increased further in May 2013, to an estimated final project cost of \$3.39 billion. Exhibit 4 shows the estimated costs for the EPU project from 2007 to the present.

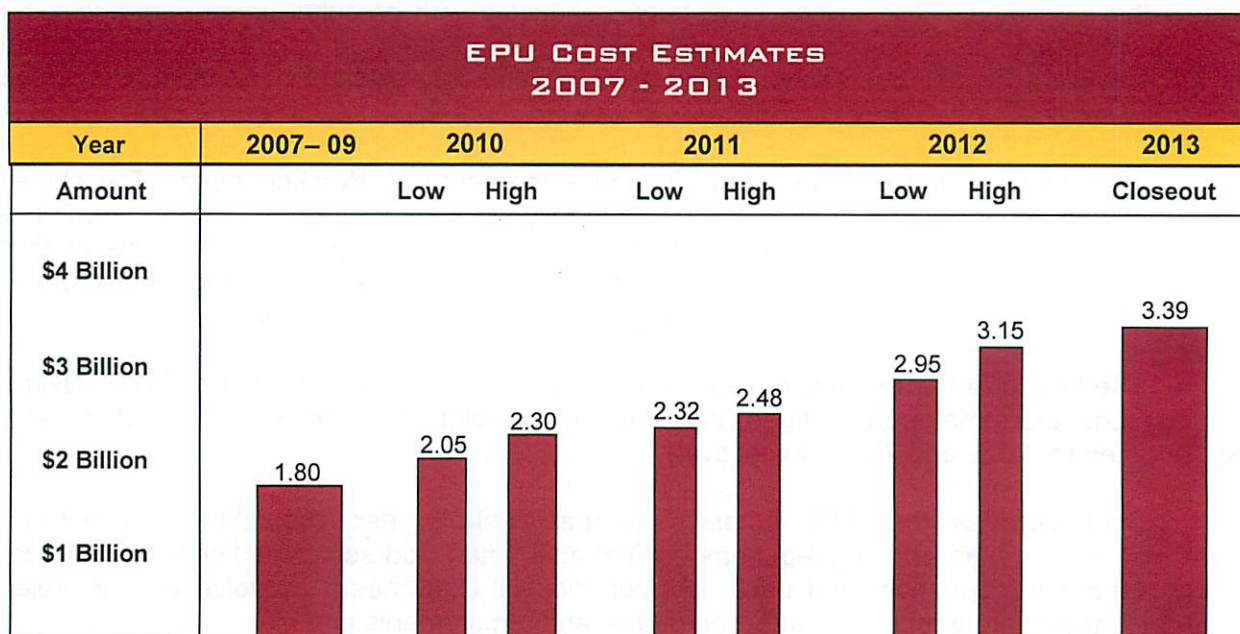


EXHIBIT 4

Source: Document Request 3.1

PSL-1 and PTN-3 outages extended beyond the planned outage schedule. PSL-1 was extended 19 days longer than expected, and PTN-3 was extended 32 days beyond the expected completion date, causing additional project costs.

FPL continued to use stand downs during the outages to ensure safe project work conditions and quality work. Stand downs are generally short in nature, reinforcing certain aspects of work safety. FPL noted that it had no work stoppages of significant delay to the project during 2012.

Project scope increased, design engineering remained behind schedule, estimated project completion costs increased, and NRC licensing delays occurred. The last scheduled outage for the EPU project was completed in April 2013. FPL has estimated a total of 512 MWe increase has been achieved over the four units updated.

FPL reversed \$2.4 million in per diem payments attributable to companies whose workers were ineligible. FPL will make further adjustments as needed.

Additional resources had to be used to keep the PTN-3 and PTN-4 outages on schedule. This was at least partly due to the inability of the lead contractor (Bechtel) to complete modification packages and perform necessary work on time. EPU management decided that Bechtel needed help to insure project schedule was met.

Bechtel was behind schedule for PTN. Additional contractor support was engaged to keep the PTN-3 and PTN-4 outages on schedule.

The results of FPSC staff's review of EPU invoicing showed that FPL's handling of EPU contract invoices for the project followed established project practices and procedures.

Overall, the EPU project has in place and employs an adequate system of EPU project controls, risk evaluation, and management oversight.

1.4 FPSC AUDIT STAFF OBSERVATIONS

1.4.1 TURKEY POINT 6&7

- ◆ Project systems for internal controls, risk evaluation, and management oversight are adequate and responsive to current project requirements.
- ◆ Project invoicing policies and procedures have functioned appropriately, are well informed, and adhere to established practices, procedures, and protocols.
- ◆ A revised NRC COLA review schedule will be released this summer. Changes to the NRC schedule are likely to impact project schedule. Delays are possible.
- ◆ As the project grows exponentially from licensing to construction, FPL should continue to reevaluate the adequacy of internal controls and oversight protocols.
- ◆ Failure to sign a construction contract by the target date may delay the project and commercial operation dates.

1.4.2 EXTENDED POWER UPRATE

- ◆ Although the final cost (\$3.398 billion) exceeded original project estimates, the four extended power uprates are complete, adding 512 MWe of generating capacity.
- ◆ The project has adequate internal controls, risk evaluation and management oversight.
- ◆ Invoicing controls function well, follow established practices and procedures, and include proper approvals. Invoices are fully documented and challenged when appropriate.
- ◆ Current unresolved warranty claims should be reviewed in the next NCRC cycle.

2.0 NEW CONSTRUCTION - TURKEY POINT 6&7

2.1 KEY PROJECT DEVELOPMENTS

2.1.1 SIGNIFICANT EVENTS

Throughout 2012 and to date, the Turkey Point 6&7 project remained focused on federal and state licensing and permitting processes. Below is a list of milestones achieved in 2012 and to date, along with others anticipated through the end of 2013.

Milestones 2012 and to date:

- ◆ Continued to respond to NRC Requests for Additional Information (RAI)
- ◆ Underground Injection Control exploratory well completed (9/12)
- ◆ Ownership Participation Memorandum of Understanding signed (9/12)
- ◆ Miami-Dade County (MDC) approved additional project zoning (01/13)
- ◆ MDC submitted an affirmative Land Use consistency determination (01/13)

Anticipated Milestones to end-2013:

- ◆ Respond to RAI
- ◆ Review the revised NRC COLA Review Schedule
- ◆ Proceed to public comment on a draft NRC Safety Evaluation Report (SER)
- ◆ NRC (draft) Environmental Impact Statement (summer, 2013)
- ◆ State Site Certification (SCA) hearings (07/13)
- ◆ Extend Forging Reservation Agreement (expires 10/13)
- ◆ State Siting Board hearing on Site Certification (12/13)

STATE - SITE CERTIFICATION APPLICATION (SCA) HEARINGS

The SCA process continued through 2012 and into 2013. Hearings are scheduled to begin in July and include two public input opportunities. FPL has scheduled over 40 witnesses to date and reports that discovery for the Site Certification hearings has been twice that of a typical rate case.

Areas of contention between FPL and other stakeholders still exist. FPL states its intent is to attempt resolution of as many as possible before the SCA hearings. Some municipalities are likely to oppose the FPL application, probably on the siting plans and aesthetic qualities of proposed transmission corridors and lines. Despite the challenges, FPL believes the project is in a strong position for the hearings and the company states that it expects to obtain approval.

The proposed transmission corridors must be certified by the Power Plant Siting Act process. Currently underway, the expected completion date of the process is in late 2013. Once FPL has a certified corridor, necessary corridor land rights (fee or easement) for rights-of-way can be identified and acquired.

LAND SWAP AND TRANSMISSION

Negotiations are ongoing for the Everglades National Park land exchange. A key process component, the draft Environmental Impact Statement (EIS), is delayed. Originally

expected in 2012, expectation is now July or August of this year, followed by a record of decision in early 2014, and completion of the exchange by mid-2014.

The FPL preferred eastern corridor is almost entirely located within existing FPL owned or public transportation rights-of-way. The conditions under which the company would be allowed to use the public rights-of-way will be established during the certification proceeding.

The FPL preferred western corridor would use the congressionally authorized land exchange corridor in Everglades National Park. Delay of the required EIS puts completion of the land exchange after state certification. If an alternate western corridor is selected, FPL would need to acquire additional land use rights, likely at significant additional cost to customers. It is also uncertain whether FPL could secure all necessary land use rights.

FEDERAL – COLA REVIEW REMAINS THE CRITICAL PATH

The COLA review schedule remains the project critical path for the Turkey Point 6&7 project. A revised COLA Review Schedule is expected from the NRC this summer.

The NRC is expected to make changes to the current review schedule, perhaps delaying the FPL COLA review process and final approval. FPL states that it cannot predict whether or to what extent delays are possible until the revised review schedule is published and it conducts a thorough project review. The review will allow FPL to quantify impact to the current PTN 6&7 project timeline.

The NRC has previously made changes to the COLA review schedule but FPL was able to absorb them with schedule margin in the original project plan. That margin is gone. Further NRC changes are likely to result in project schedule delays and potential cost increases.

FEDERAL – COLA REVISIONS 4 AND 5

FPL submitted Revision 4 to its COLA to the NRC in December 2012. Revision 4 incorporated changes derived from the project plan and actions taken in response to NRC requests for additional information. FPL is currently preparing a Revision 5 and targets submission of the revision to the NRC late this year. The company states that these revisions do not affect project critical path.

FEDERAL – COLA TARGET DATE IS QUESTIONABLE

FPL believes that receiving its COLA by September 2014 is a challenge because of possible federal budget and waste confidence issues.

In June 2012, the NRC was ordered by the U. S. District Court of Appeals to prepare an environmental impact statement and revise the waste confidence decision and spent nuclear fuel temporary storage rule. The NRC acknowledged this as an agency priority and directed its staff to complete this work within two years. In August 2012, the NRC halted COLA approvals until these issues were resolved. An NRC failure to complete the court ordered requirements on time could delay approval of the FPL COLA and negatively impact PTN 6&7 project schedule.

The effects of NRC budget reductions may also impact the resources available for COLA review, causing a slowdown in approvals. FPL states that the NRC must successfully address waste confidence while simultaneously continuing its COLA process in order to meet the current project schedule.

FEDERAL - PROBLEMS IN COLA FSAR 2.5

In mid-May 2012, the NRC identified issues in the Final Safety Analysis Report (FSAR), Section 2.5, disputing FPL analyses for geology, seismology, geotechnical engineering, and alternative sites. The disputed areas impacted the COLA safety and environmental reviews.

The NRC cited original FPL analyses as unclear, incomplete, or unsupported by references.¹ Due to the significance of the issues involved, the NRC halted COLA safety and environmental reviews until deficiencies were corrected, but continued reviewing other sections of the FPL COLA. The NRC also directed FPL to conduct an internal audit of quality assurance measures related to preparation of these analyses, informing the NRC of findings and proposed corrective actions.

In response to NRC concerns, FPL hired AMEC to help address identified problem areas. AMEC has previously performed FSAR 2.5 specific work, is familiar with NRC review processes, and knowledgeable of unique Florida geology and seismic characteristics. FPL and AMEC conducted an examination of FSAR 2.5 RAI responses and FPL directed the lead COL contractor (Bechtel) to perform a technical review of its subcontractors working on FSAR 2.5.

As a result of the review and audits, FPL put into place new and more thorough RAI processes. FPL directed Bechtel to add an independent technical inspector to the review and comment process. FPL also initiated a double review process to further insure that products from Bechtel were of the level of technical detail needed for NRC review. FPL shared all review findings and observations with the NRC. As of the end December 2012 the additional analyses were submitted to the NRC. All corrective actions related to the internal audit were completed by the end of January 2013.

FPL initiated warranty claims [REDACTED] against Bechtel and withheld payment pending resolution. Parties later agreed that a portion [REDACTED] was not associated with warranty work and payment was issued. The balance [REDACTED] was withheld from Bechtel. FPSC audit staff believes this adequately resolved the issue.

FEDERAL - RESPONDING TO NRC REQUESTS FOR INFORMATION

At the federal level, FPL continues responding to safety and environmental requests for additional information and anticipates completion of all outstanding RAIs by midyear. To date, FPL has received slightly over six hundred separate RAIs for the Turkey Point 6&7 project, about equally divided between safety (including security and emergency preparedness) and environmental issues.

FPL has received 622 RAIs since submission of its COLA. Of those, 79 were received in 2012 and six in 2013. Of these 85, six remain outstanding. None are currently overdue.

PROJECT - IN SERVICE DATES UNCHANGED

The in-service target dates are unchanged. **Exhibit 5** shows the schedule over time.

¹ NRC letter to FPL, May 4, 2012, Subject: Turkey Point 6 and 7 Combined License Application Review Schedule, pg. 1.

**TURKEY POINT 6&7
PROJECT MILESTONE SCHEDULE**

Phase		Original	1 Year Ago	Current
Licensing	Start	2007	2007	2007
	Finish	2012	2014	2014
Site Preparation	Start	2010	2014	2014
	Finish	2012	2016	2016
Generation Plant	Start	2013 / 2015	2016	2016
	Finish	2018 / 2020	2022 / 2023	2022 / 2023
Transmission Facilities	Start	2010	2014	2014
	Finish	2020	2023	2023

EXHIBIT 5

Source: Document Request 1.32

FPL maintains that Unit 6&7 in-service target dates remain valid but notes that it is experiencing some regulatory schedule variance and minor scheduling delays. The company undertook a complete schedule review in 2012 to determine if current timeline and internal milestones needed adjustment. By eliminating schedule margin, FPL determined that although some intermediate dates may shift, the overall schedule and commercial operation dates for both units remain viable under present conditions.

FPL management recognizes that schedule turbulence is possible at all regulatory levels and states that the company attempts to minimize it. Toward that goal, FPL states that it maintains close coordination with regulatory approval agencies, holding regular meetings with them and other interested parties.

PROJECT - 2012 EXPENDITURES LOWER THAN EXPECTED

FPL new nuclear project expenditures during 2012 were lower than anticipated. The original budget estimate was \$34.9 million but expenditures only totaled \$29.6 million.

Actual expenditures for 2012 were \$5.3 million below the FPL Nuclear Cost Recovery filing. Licensing and Permitting activities had lower than expected costs. There were no expenditures for construction, transmission, long lead procurement, or power block engineering and procurement. The \$5.3 million variance was largely caused by changes in the pace of regulatory and licensing reviews. The largest portion of the variance was realized from shifting the Land Use and SCA hearings from 2012 to 2013.

Licensing costs totaled \$22.57 million compared with the earlier company estimate for the year of \$27.81 million. Variance (\$5.24 million) resulted primarily from lower than anticipated SCA expenses, project team costs (payroll, expenses, and facilities), outside support for environmental services, and legal expenses.

Permitting expenditures for 2012 were lower than anticipated. Originally estimated at \$1.46 million, the project actually spent \$1.00 million. The variance (\$0.46 million) was realized in lower than expected project communication support costs and legal fees.

An area that experienced higher than anticipated expenditures was Engineering and Design. With an original projection of \$5.64 million, actual engineering expenditures totaled \$5.99 million. The variance resulted from modifications required in the drilling and testing plans

for the underground injection well and the [REDACTED] fee associated with membership in the Electric Power Research Institute (EPRI).²

PROJECT - CONSTRUCTION CONTRACT TARGETED FOR 2014

FPL is still without a construction contract, believing that schedule and licensing uncertainty continue to make it advantageous to defer. Additionally, no decision has been made whether an EPC or an EP&C contract would be more advantageous.³

Although FPL recognizes that there may be craft availability and cost risks from delaying the signing of a contract, it believes this course of action best serves company interests. The current project schedule targets awarding an EP contract by the end of September 30, 2014 and the C portion by April 1, 2015.⁴ If an EPC contract is chosen, FPL states that it would be done by the EP contract milestone of September 30, 2014. FPL does not believe deferring a major construction contract negatively impacts the overall project cost or schedule.

FPL states that preliminary discussions have been conducted but no substantive talks have been initiated with any potential prime contractors.

PROJECT - LONG LEAD FORGING RESERVATION

The Forging Reservation Agreement was originally signed by FPL and Westinghouse in 2008. This reserved manufacturing capacity for specialized, ultra-heavy forgings. The original agreement included a reservation fee of \$10.8 million and expired in December 2009.

Several extensions of the original expiration date have been negotiated, the latest extending it through October 2013 and preserving original terms and conditions. Negotiations are ongoing to further extend the expiration date.

FPL believes that continuing to extend the original contract meets its interests. The company believes it reduces current costs and preserves schedule flexibility while still preserving the critical manufacturing slot. Extensions defer manufacturing and storage costs and minimizes current exposure if FPL should opt to significantly defer or cancel the project.

FPL acknowledges risk if the agreement is dissolved instead of extended, resulting in a partial refund, minus 15 percent for administration, if Westinghouse is able to remarket the slot. If remarketing the slot fails, FPL could lose the entire \$10.8 million reservation fee.

The company continues to acknowledge that long lead forging manufacturing must begin no later than 2015 in order to meet current in-service dates.

PROJECT - JOINT OWNERSHIP DISCUSSIONS

FPL management maintains that the company needs 100 percent of Turkey Point 6&7 capacity for its own customers. However, FPL has executed an option agreement with OUC for 100MW if FPL receives a COL by 2022, demonstrating broader support for the project.⁵

FPL is compliant with the Commission order to maintain regular discussions with prospective joint owners, conducting annual meetings and providing the Commission with

² Docket No. 130009-EI, Witness Scroggs testimony, pg. 37, lines 12-14, filed March 1, 2013.

³ EPC – Engineering, Procurement, and Construction by one vendor; EP&C – a single vendor for Engineering and Procurement, and a second vendor for Construction.

⁴ Document Request 1.3

⁵ Document Request 2.1 PowerPoint presentation "New Nuclear Update – April 2013"

required status reports. The annual meeting is scheduled for May 2013. Participants include the Florida Municipal Energy Association, Florida Municipal Power Agency, Orlando Utilities Commission (OUC), Jacksonville Energy Association (JEA), Seminole Electric Cooperative, Ocala Electric, and Lakeland Electric.

2.1.2 TURKEY POINT 6&7 PROJECT COST ESTIMATES

The original Determination of Need in 2007 outlined a Turkey Point 6&7 project cost estimate ranging from \$12.08 billion to \$17.76 billion. The total was divided into four categories: site selection, pre-construction, construction, and Allowance for Funds Used During Construction (AFUDC). See **Exhibit 6**.

TURKEY POINT 6&7 2007 DETERMINATION OF NEED COST ESTIMATE		
Category	Low	High
Site Selection (Actual)	\$8,000,000	\$8,000,000
Pre-construction	\$465,000,000	\$465,000,000
Construction	\$8,149,000,000	\$12,124,000,000
AFUDC	\$3,461,000,000	\$5,160,000,000
TOTAL	\$12,083,000,000	\$17,757,000,000

EXHIBIT 6 Source: Docket No. 130009-EI, Witness Scroggs, Exhibit SDS-7, Schedule TOR-2, May 2013 Testimony

Estimated final cost of the project is in a range from \$12.67 billion to \$18.49 billion,⁶ down slightly from \$12.81 billion to \$18.69 billion a year ago. FPL updates this estimate annually to reflect actual costs for the year just past, actual/estimated costs for the current year and projected costs for the subsequent year. This has generally resulted in deferring some costs to future years with two effects on total project cost (TPC). Deferring costs exposes them to escalation that usually increases TPC but avoids interest charges that tend to decrease it. FPL states that the latter factor dominates, causing the slight net reduction. See **Exhibit 7**.

TURKEY POINT 6&7 CURRENT TOTAL IN-SERVICE COST ESTIMATE		
Category	Low	High
Site Selection	\$6,118,105	\$6,118,105
Pre-construction	\$220,755,633	\$220,755,633
Construction	\$9,042,530,242	\$13,273,793,283
AFUDC	\$3,396,864,789	\$4,986,356,674
TOTAL	\$12,666,268,770	\$18,487,022,695

EXHIBIT 7 Source: Docket No. 130009-EI, Witness Scroggs, Exhibit SDS-7, Schedule TOR-2, May 2013 Testimony

⁶ Docket No. 130009-EI, TOR-2 (True –Up to Original), pg. 1 of 1, May 1, 2013

2.1.3 FPL PROJECT FEASIBILITY ANALYSES

FPL performs annual feasibility analyses to determine project feasibility and the company believes these provide an additional layer of accountability and management oversight. The analyses consider multiple scenarios under varying conditions and assumptions, using fuel and environmental forecasts, capital cost estimates, and sunk cost data.

FPL states that the analytical methodologies and approaches used in the current feasibility study are very similar to those used in the 2007 Need Determination filing and in annual analyses 2008 through 2012.

FPL states that its most recent feasibility analysis shows the project to be cost-effective in five of seven scenarios, the same outcome as last year's feasibility study. FPL believes that its annual analyses strongly support continuation of the Turkey Point 6&7 project, that the project remains feasible, viable, and offers substantial benefit to consumers compared to any non-nuclear alternative.

2.2 PROJECT CONTROLS AND OVERSIGHT

2.2.1 PROJECT CONTROLS

Project controls exist in FPL's financial and accounting systems, department procedures, and desktop instructions. FPSC audit staff believes the controls are adequate, sufficiently comprehensive, and responsive to the needs of the project at its current stage.

In 2012, FPL created several new project instructions and revised others already in existence. See **Exhibit 8** below. Staff believes the new references and procedures brought on line in the past year are a response to project maturation, not corrective actions due to control deficiencies. No internal audits, quality assurance reviews, or external audits reviewed by staff cited any weaknesses in project instructions.

TURKEY POINT 6&7 NEW PROJECT INSTRUCTIONS			
Title	Number	Date	Type
Request for Information (RFI) and RFI Response	NNP-PI-01	10/04/12	Revised
COLA Configuration Control and Responses to Requests for Additional Information for Project Applications	NNP-PI-04	07/20/12	Revised
NNP NRC Correspondence	NNP-PI-06	10/15/12	Revised
NNP Department Training	NNP-PI-07	02/29/12	New
NNP COLA Review & Approval Process	NNP-PI-08	07/20/12	Revised
Exploratory and Dual Zone Monitoring Well Project Incident Response Instructions	NNP-PI-15	07/03/12	New
Payroll Distribution Review Process	n/a	06/11/12	New
Monthly Cost Report Process	n/a	06/11/12	New
Invoice Review	n/a	05/24/12	New
Expense Report Review	n/a	07/24/12	New

EXHIBIT 8

Source: Document Request 1.25

Four project instructions were revised in 2012, including NNP-PI-04 which improved existing RAI response controls and NNP-PI-06 which governs correspondence with the NRC.

The use of “white papers” continue as a means for project leadership to memorialize key decisions. Management uses white papers to capture process and rationale, preserving important details and chain of event data for future review, recall, or regulatory oversight. Project management believes white papers to be an integral part of project transparency.

The primary project control and internal / external processes for Turkey Point 6&7 remain unchanged. For project control these include:

- ◆ Budgeting and reporting process,
- ◆ Schedule and activity reporting processes,
- ◆ Contract management process, and
- ◆ Internal and external oversight processes.

And, for internal and/or external oversight:

- ◆ Executive management,
- ◆ Subordinate managers,
- ◆ FPL subject matter experts (SME) and team members,
- ◆ Third party experts
- ◆ Mutually reinforcing schedules and cost controls, and
- ◆ Regular updates/reports for risk, cost, and schedule.

The FPL Project Controls group provides management with routine, regular reports on schedule, budget, costs, vendor performance, and risk. Primavera-6 remains as the scheduling software, capable of real time updating, active monitoring, tailored date sorting, and as an aid to producing customized, detailed status reports.

It has been nearly two years since the PTN 6&7 project accounting and financial system migrated to the SAP software system. FPL states SAP is more user friendly than its legacy system, with improved reporting and uploading capabilities. No problems have been reported. SAP is the only system used to initiate and record management approval for commitment of Turkey Point 6&7 project funds.

2.2.2 RISK MANAGEMENT REPORTING

Formal risk management is focused in two specific reports. Monthly, a project specific dashboard tracks key project aspects that constitute major risk areas. Quarterly, a broader review is conducted to determine and refine significant risks and associated trends. These lead to a Quarterly Risk Assessment.

On a monthly basis the New Nuclear organization reports project status to the executive team through meetings and formal presentations. If particular situations or decisions warrant, Turkey Point 6&7 project leadership has the option of presenting the information to and obtaining the advice of the FPL Risk Committee. No presentations were made to the FPL Risk Committee in 2012 or to date in 2013.

Monthly dashboard reports mesh with and contribute to the Quarterly Risk Analysis. Staff requested and reviewed all Turkey Point 6&7 monthly dashboard reports for 2012 and through the first quarter of 2013. Monthly reports provide more clarity and detail, probability of

occurrence for each risk, and analysis of potential project impact, cost, and schedule. Areas assessed are unchanged this year and include:

- ◆ NRC Licensing
- ◆ US Army Corps of Engineers Permitting
- ◆ Site Certification Application
- ◆ Underground Injection Control well
- ◆ Miami-Dade County
- ◆ Development
- ◆ Project Design
- ◆ Pre-Construction Planning
- ◆ Budget
- ◆ Schedule
- ◆ Procurement
- ◆ Safety

FPSC audit staff believes the slate of monthly dashboard topics is currently sufficient to inform project leadership. As the project moves from licensing to construction, however, staff believes a reassessment and restructuring of content will be necessary.

2.2.3 MANAGEMENT OVERSIGHT

No major personnel changes were made within the project during 2012. None are currently planned for 2013.

The project is structured within jointly responsible organizations – Development and New Nuclear Plant. Until March 30, 2013 both reported to the Vice-President for Engineering, Construction and Corporate Services, with a dashed line reporting relationship with the Chief Nuclear Officer (CNO), the executive responsible for interactions with the NRC. Beginning that date, both organizations began reporting directly to the CNO.

With the project scheduled to complete local approvals and state certifications in 2013, actions necessary to attain federal (NRC) licensure will supplant the current focus. FPL determined that it would be beneficial going forward to create a closer, more direct linkage between New Nuclear and the CNO.

FPL states that the organizational reporting change will form a more efficient project alignment going forward. The company maintains, however, that there is no corresponding impact from this change to internal project operations, subordinate structure, or existing relationships with contractors and regulators.

2.2.4 AUDITS

During 2012, the *Engineering & Construction - New Nuclear Projects - 2011 Expenditures Review* was performed by Experis under FPL Internal Audit direction and supervision. The audit examined approximately [REDACTED] million or [REDACTED] percent of the \$22.7 million in 2011 project expenditures. Areas examined included [REDACTED]

[REDACTED], and [REDACTED] of annual NCRC filings. [REDACTED], with a [REDACTED] than [REDACTED] percent of total invoices. [REDACTED] were [REDACTED] to [REDACTED] and [REDACTED] were [REDACTED] the [REDACTED]. Those that could not be [REDACTED] were [REDACTED] in a [REDACTED], a [REDACTED], and [REDACTED]. FPSC audit staff reviewed the audits and believe the FPL management responses to be adequate.

In February 2013, Internal Audit again contracted Experis to conduct an audit of 2012 expenditures, the *Engineering & Construction - New Nuclear Projects - 2012 Expenditures Review*. Areas to be audited are unchanged from the previous year -- [REDACTED], [REDACTED], and [REDACTED] of the annual NCRC filing amounts. At the time of publication of this report the audit was not yet completed. Commission audit staff will review the audit report when available.

In 2012, Concentric Energy Advisors (Concentric) also reviewed project activities and controls, as it has annually since 2008. During this latest annual review, Concentric focused on corporate procedures, project plans, involvement of internal stakeholders, reporting and oversight, corrective actions, and viability of project technology. Concentric concluded that FPL appropriately and prudently managed the project in 2012.

2.2.5 FPL QUALITY ASSURANCE REVIEWS

Quality Assurance (QA) holds vendors accountable for process and product quality while under contract to FPL. Oversight of production quality, manufacturing activities, and control procedures is accomplished through inspections at the vendors' headquarters and/or manufacturing sites. In 2012, FPL Quality Assurance assessors noted no areas of vendor non-compliance related to the Turkey Point 6&7 project.

FPSC audit staff believes that FPL Turkey Point 6&7 QA oversight is adequate and properly focused. The oversight plan and schedule is responsive to current project needs. As the project expands dramatically in the transition from licensing to construction, scale and tempo will correspondingly accelerate. At that point, an FPL reassessment of its QA oversight plan, schedule, and structure will be warranted and restructuring may be necessary.

2.3 CONTRACT OVERSIGHT AND MANAGEMENT

FPL management, project leaders, technical representatives, and quality assurance personnel monitor vendor performance on a daily basis. Monitoring at various levels is intended to ensure that vendor performance meets contract deliverables and cost parameters.

Integrated Supply Chain (ISC) sourcing specialists and contract managers monitor change orders and invoicing for anomalies. Items outside established contractual norms are routinely reported up the chain of command. Schedule and cost risks are identified, prioritized, and quantified. This information is then used to formulate responsive solutions.

FPL believes invoice mistakes and vendor overcharges are quickly discovered through application of existing and newly created systems, protocols, and processes. Monthly, invoicing specialists review every invoice received each month. Individual invoices are checked for accuracy against current contract provisions and prevailing labor rates. Hours are vetted against the appropriate sub-job. Travel expense requests are checked for applicability, authorization, justifications, and contractual relevance.

2.3.1 CONTRACTS EXECUTED OR MODIFIED

In 2012, the FPL threshold for expenditures requiring a competitive bid was raised \$25,000 to \$50,000. Single source justification was similarly modified, the criteria rising from \$25,000 to \$50,000, and the instructions for use of a predetermined source now requires

approval by an Integrated Supply Chain (ISC) Director or higher. FPSC audit staff believes the changes are appropriate and responsive to the project.

FPL New Nuclear executed seven contracts in 2012 greater than \$100,000. Two were competitively bid and five were single sourced. Staff verified that required letters of justification were present and in compliance with FPL internal policies and procedures. As shown in **Exhibit 9** below, none of the original contracts is greater than \$300,000.

TURKEY POINT 6&7 NEW CONTRACTS GREATER THAN \$100,000					
Vendor	Description	Terms	Original Value⁷	Issued	Expires
Burns & McDonnell	Design of radial collector well	T&M	████████	02/15/12	12/31/12
Layne Christensen Co.	Exploratory / UIC well installation	T&M	████████	03/30/12	04/30/13
Curtis Group	SCA & Land Use / Zoning	T&M	████████	03/30/12	04/30/12
University of Miami	Expert witness support	T&M	████████	11/05/12	05/05/13
Schlumberger	Expert Legal Services	T&M	████████	05/03/12	06/30/13
TetraTechGeo	Collector well modeling support	T&M	████████	08/01/12	03/31/13
Pace Analytical	Reclaimed Water Analysis	Fixed	████████	11/13/12	12/31/14

EXHIBIT 9

Source: Document Request 1.50

Change orders are useful and common components of the change management process in which changes to the scope or terms of the original contract are made and agreed to by the parties involved. Changes include work, added or deleted, which alters the original contract amount or completion date. Fourteen change orders (CO) with values over \$100,000 were executed with various vendors in 2012. See **Exhibit 10**.

⁷ Value includes original contract and any subsequent change orders

**TURKEY POINT 6&7
CHANGE ORDERS GREATER THAN \$100,000**

Vendor	Year	CO #	CO Value
Atkins North America	2012	3	████████
ECT	2012	7	████████
ECT	2012	8	████████
Layne Christensen Co.	2012	2	████████
Golder Associates Inc.	2012	7	████████
Golder Associates Inc.	2012	6	████████
HDR Engineering	2012	8	████████
Eco Metrics, Inc.	2012	4	████████
Westinghouse Electric Co.	2012	7	████████
Golder Associates Inc.	2013	9	████████
ECT	2013	10	████████
Curtis Group	2013	6	████████
Normandeau	2013	3	████████
Ammon	2013	1	████████

EXHIBIT 10

Source: Document Request 2.7

Open contracts with a value greater than \$250,000 appear in **Exhibit 11**, below, reflecting the original contract amount and subsequent change order increases. Commission audit staff reviewed all single or predetermined source change orders for required justifications. No discrepancies were noted. The Bechtel contract remains the largest at ██████████. Signed in 2007, the Bechtel contract has 48 change orders with another valued at approximately ██████████ expected later in 2013, pushing contract value to ██████████.

2.3.2 FPSC AUDIT STAFF INVOICE REVIEW

Audit staff reviewed Turkey Point 6&7 project invoices as an integral part of Commission oversight of FPL contract controls and processes. The population set consisted of invoices for five contractors and represented seven separate contracts. The sample period was January through December 2012. Staff reviewed \$8.03 million, or 72.1 percent, of the \$11.13 million invoiced in 2012 by the five contractors.

Staff's evaluation checked authorizations, approval signatures, and uniform application of invoicing and control procedures. FPL challenges and appropriate push back of questionable charges was also reviewed.

Staff's review reaffirmed that FPL invoicing policies and procedures are well understood and that invoicing personnel follow established practices, procedures, and protocols. The revision of expense report review procedures (July 2012, **Exhibit 10**) contributed to more efficient and accurate handling of expense reports.

In the invoices reviewed, there were no major amounts disputed. Authorizations and required signatures were present and totals were properly reconciled. Supporting documentation and invoiced amounts were challenged appropriately, with payment withheld until issues had been reconciled. Memos thoroughly documented communication with the contractor regarding questionable submissions or supporting documentation.

TURKEY POINT 6&7 EXISTING CONTRACTS GREATER THAN \$250,000				
Status	Vendor	Description	Current Est. Value	Type*
Open	AMEC Environment & Infrastructure	Review of RAI responses	██████████	S
Open	Atkins North America	Scientific analysis	██████████	S
Open	Bechtel Power Corporation	COLA / SCA prep & RAI support	██████████	C, S, P
Open	Burns & McDonnell	Design of radial collector well	██████████	C
Open	Curtis Group	SCA & Land Use / Zoning	██████████	S
Open	Eco Metrics, Inc.	Environmental consulting	██████████	S
Open	ECT, Inc.	SCA & post-submittal support	██████████	S, P
Open	Electric Power Research Institute	Membership	██████████	S
Open	Experis	Audit	██████████	S
Open	Golder Associates Inc.	Post-SCA submittal support	██████████	S
Open	HDR Engineering	Cooling water supply / discharge	██████████	C, S
Open	Layne Christensen Co.	Exploratory / UIC well installation	██████████	C, S
Open	McCallum Turner, Inc.	COLA site selection, RAI support	██████████	S
Open	McNabb Hydrogeologic Consulting	UIC subject matter expertise	██████████	C, S
Open	McNabb Hydrogeologic Consulting	Post-SCA / UIC licensing	██████████	S, P
Open	Power Engineers, Inc.	Analysis of transmission facilities	██████████	S
Open	TetraTechGeo	Collector well modeling support	██████████	S
Open	University of Miami	Expert witness support	██████████	S
Open	Westinghouse Electric Co.	COLA prep & RAI support	██████████	S, P
* C = Competitive Bid S = Single/Sole Source P = Predetermined Source				

EXHIBIT 11

Source: Docket No. 130009-EI, Witness Scroggs, Exhibit SDS-7, Schedule AE--7A, May 2013

3.0 EXTENDED POWER UPRATES

3.1 KEY PROJECT DEVELOPMENTS

During 2012, the EPU project received final approval of the remaining License Amendment Requests (LAR) from the Nuclear Regulatory Commission (NRC), and completed three of the remaining four unit outages. The last EPU outage was Turkey Point (PTN) Unit 4, completed in April 2013.

3.1.1 2013 COST ESTIMATE INCREASE

In early 2012, FPL wrestled with the Bechtel estimate of costs at project end. EPU management vetted the Bechtel estimate with FPL executives, and required Bechtel to identify potential changes and efficiencies to reduce EPU estimated costs. During the Spring of 2012, EPU management continued to work with Bechtel to identify further reduction. In May 2012, FPL filed a new non-binding project cost estimate range of between \$2.956 billion and \$3.150 billion to complete the EPU project.

By the end of 2012, FPL completed the St. Lucie PSL-1, PSL-2, and Turkey Point PTN-3 outages; and the PTN-4 outage had begun. The PTN-4 outage began in November 2012, and was scheduled to complete in early 2013. EPU management began ramping down personnel and contractors after the PSL outages completed. FPL continued to ramp down personnel and contractors at Turkey Point, with the completion of the PTN-3 and PTN-4 outages.

In May 2013, FPL updated the EPU project estimate to \$3.398 billion. The new project estimate includes the completion of PTN-4 and FPL's costs for close-out activities to be completed by year end 2013. FPL stated that the closeout in 2013 would result in no FPL Nuclear Cost Recovery Clause project expenditures in 2014. The 2013 revised cost estimate represents an increase of \$442 million (15 percent) over the 2012 low end estimate range and \$248 million (7.9 percent) over the high end of the range.

Exhibit 12 shows newly estimated construction costs, carrying charges, and allowance for funds used during construction (AFUDC) from 2007 through the end of 2013.

EPU COST ESTIMATES AND CHANGES 2007 - 2013									
Category	2007 Need Estimate (Billion)	2010 Range (Billion)		2011 Range (Billion)		2012 Range (Billion)		2013 Total Estimated Cost of Plant (Billion)	2012-13 Change (Billion)
		Low	High	Low	High	Low	High		
Construction	\$1.446	\$1.900	\$2.141	\$2.114	\$2.265	\$2.696	\$2.887	\$3.129	\$0.242
AFUDC & Carrying Costs	\$.352	\$.153	\$.158	\$.209	\$.214	\$.260	\$.263	\$.269	\$0.006
TOTAL	\$1.798	\$2.053	\$2.299	\$2.324	\$2.479	\$2.956	\$3.150	\$3.398	\$0.248

EXHIBIT 12

Source: Docket No. 130009-EI, Witness Jones, Exhibit TOJ-13, Schedule TOR-2, May 2013

3.1.2 INCREASED MEGAWATT PRODUCTION ACHIEVED

Based on the completion testing of the four uprates, the project has created an additional 512 MWe of capacity for FPL customers. The increase is 22 MWe (4.5 percent) greater than the 490 MWe FPL predicted in March 2012, and 113 MWe (28 percent) greater than the 399 MWe originally expected from the project. **Exhibit 13** provides a summary of the estimated and actual outage completion and capacity increases achieved.

EPU OUTAGE COMPLETION AND CAPACITY INCREASES			
Unit	Estimated Completion	Completion	Achieved Capacity (MWe)
PSL 1	July 2012	PSL-1 EPU - April 2012 PSL-1 Mid-cycle late July 2012	148.4
PSL 2	November 2012	December 2012	131.3
PTN 3	August 2012	November 2012	116
PTN 4	April 2013	April 2013	116
TOTAL			512

EXHIBIT 13

Source: Document Request 5.1

3.1.3 NRC GIVES FINAL LICENSING APPROVALS

A License Amendment Request is required by the Nuclear Regulatory Commission to receive approval for operating a nuclear unit at a higher level of output. The NRC licensing review requires the utility to provide sufficient information regarding the unit's operational safety under the prescribed higher output condition to ensure there is no danger to the public. All three of FPL's EPU LARs were submitted to the NRC for review during 2010-2011. The NRC approved all three EPU LARs during 2012.

3.1.4 PSL-1 OUTAGE TAKES LONGER TO COMPLETE

By the end of March 2012, FPL had completed the first set of outages for all four units, and the second outage for PSL-1 was almost complete. However, during equipment removal, FPL experienced additional scope work necessary to complete certain modifications. The modification changes required further engineering design, scheduling, planning, and constructability reviews. The added work increased the outage complexity and staffing levels for the PSL-1 outage, and the outage extended 19 days beyond the estimated completion.

During power ascension testing, FPL experienced issues with feedwater pump vibrations, a steam bypass control valve inadvertently opening, and the need to replace spargers located in the main condenser. The identification of these necessary modifications required more time and resources to successfully repair.

Bringing condensate and feedwater water chemistry into specification also required more time and resources than expected. The large number of component replacements during the outage required FPL to take additional steps to ensure secondary water quality. FPL used a clean-up system to ensure there were no foreign material contaminants and water chemistry met required specifications before beginning the steam generator conversion to steam.

EPU management stated that although additional scope extended the PSL-1 outage completion, there was no impact to other project outage schedules. FPSC audit staff understands that certain conditions are unknown until work actually begins, and believes the delays experienced during the PSL-1 outage were reasonable extensions of the project original scope.

3.1.5 PSL-1 MID CYCLE OUTAGE IS COMPLETED AS SCHEDULED

FPL explained to FPSC audit staff that NRC licensing staff responsible for LAR reviews, were involved in the Fukushima reviews, which caused some delay in reviewing the PSL-1 LAR. Due to an expected NRC approval delay, FPL planned a short mid-cycle outage of six to ten days for late July 2012. The mid-cycle outage was necessary to change instrumentation set points, complete minor modifications for operation at the uprate level, and implement new plant operations processes and procedures. The outage was completed as scheduled. Audit staff believes the additional costs of the mid-cycle outage were unavoidable due to delayed NRC approval.

3.1.6 PSL-2 OUTAGE COMPLETES IN LESS TIME THAN EXPECTED

Although wet weather and Tropical Storm Isaac delayed the PSL-2 outage four days during August and September, work was completed ahead of schedule in November 2012. FPL noted that the use of lessons learned from the PSL-1 outage, and additional staffing resources involved with the PSL-1 outage, helped complete the PSL-2 outage implementation more efficiently. FPL stated that by using the experience and additional staffing resources from PSL-1, the PSL-2 outage was completed in 25 percent less time and was 18 percent less costly than PSL-1.

3.1.7 PTN-3 OUTAGE TAKES LONGER TO COMPLETE

During the removal of component equipment for PTN-3, FPL discovered additional work scope would be necessary. Some engineering designs required additional modification to accommodate actual conditions found during component removal. EPU management stated that the PTN-3 outage delay was caused by increased modification discoveries, emerging scope activities, increased staffing requirements, additional material, and time resource requirements. FPL also explained that PTN-3 modifications were first-time evolution major modifications to plant equipment, which required additional time and resources to complete modifications.

FPL described additional factors that contributed to PTN-3 outage delay including, unexpected asbestos abatement, wet and inclement weather delays, and safety stand downs. Increases in the number of work package planning staff to complete scope increases and turnover support also added to project costs. Increased commodities to support the outage implementation, such as structural steel supports, increased large bore supports, small pipe welds, electrical wiring conduit, and cable were also required.

EPU management used additional contractor resources to assist in completing limited scope Bechtel work, to mitigate the impact of increase time and resources necessary for the outage implementation. The issues identified by FPL during the removal of PTN-3 equipment, and systematic turnover of the unit to plant operations extended the outage 32 days beyond the estimated completion.

FPSC audit staff understands that certain conditions are unknown until work actually begins, and believes the delays experienced during the PTN-3 outage contained reasonable extensions of the project original scope. Certainly large projects of this nature do experience

scope increases and the need for additional resources, which logically impact schedule and costs. EPU management appears to have reasoned the difficulties of this outage and made appropriate effort to manage the increased schedule, scope, and costs identified with the completion of PTN-3. FPSC audit staff believes the additional project costs and time to complete the extended outage resulted from reasonable EPU management decisions to use additional resources and commodities to complete the outage implementation.

3.1.8 PTN-4 OUTAGE COMPLETES IN LESS TIME THAN PTN-3

Due to delays experienced in completing the PTN-3 outage, PTN-4 pre-outage work fell behind schedule. EPU management implemented a “bridging strategy” with Bechtel and other vendors to increase critical resources and limit the burden of the PTN-3 outage delay. EPU management noted that incorporating lessons learned from the PTN-3 outage to each modification for the PTN-4 outage improved overall results and helped mitigate the delay. EPU management also decided to transfer a portion of Bechtel’s work scope to other major vendors and further improve the schedule certainty for PTN-4.

According to FPL, some engineering modification scope transferred to the EPU Planning Group, requiring approximately 30 additional planners be added as resources. EPU management also gave Shaw, Weld Tech, Ames, Siemens, and Williams contractors a portion of the Bechtel PTN-4 work scope for the outage. FPL states, that as a result of the bridging strategy, additional staffing resources, and lessons learned from PTN-3, the PTN-4 outage completed 15 percent faster and cost 21 percent less than the PTN-3 outage.

FPSC audit staff believes EPU management reasoned the difficulties of being behind on pre-outage work, but made appropriate effort to manage the schedule and scope identified with the completion of PTN-4. The additional project costs and resources used to mitigate the pre-outage delay for PTN-4 resulted from reasonable EPU management decisions to use additional resources and commodities to complete the outage implementation.

3.1.9 WORK STAND DOWNS AND STOPPAGES IN 2012

Stand downs and work stoppages ensure safe project work conditions and quality work. Stand downs are short in duration and reinforce work safety. Work stoppages are longer, used to make contractors aware of problems in work quality or adherence to procedures or practices. EPU management explains that stand downs are used as a means of correcting questionable or unsafe work behaviors as part of its safety culture, to ensure future safety events are prevented.

During 2012, there were 18 stand downs recorded during the PSL and PTN EPU outages. Bechtel was responsible for 13 (72 percent), Siemens for four (22 percent) and Shaw for one (six percent). Eleven stand downs were at PSL (61 percent) and seven at PTN (39 percent). FPL categorized 11 (61 percent) stand downs as safety related.

According to FPL none of the stand downs impacted EPU project critical path.

3.2 PROJECT CONTROLS AND OVERSIGHT

3.2.1 CHANGES TO CONTROLS AND OVERSIGHT

On an ongoing basis, FPL’s EPU project team makes revisions to its EPU Project Instructions to reflect changes within the project procedures and controls. If necessary, each

EPU site management team has the flexibility to implement additional meetings, procedures, and controls for their site.

During 2012, two new EPU Project Instructions were completed related to *Human Performance* (EPPI-190) and the *Work Hours Validation and Sampling Program* (EPPI-235). Twelve EPU Project Instructions and the EPU Project Governance and Oversight Protocol were revised during 2012. Four EPU Project Instructions were deleted from service due to no longer being necessary. In January 2013 FPL also deleted EPPI-810 regarding PSL severe weather preparation, since the units are completed and under plant operation.

According to FPL, two EPU Project Instructions are being considered for further revision during 2013, related to Roles and Responsibilities (EPPI-140) and PSL EPU project Severe Weather Preparations (EPPI-810). FPSC audit staff identified no deficiencies in EPU project procedures and controls during this final phase of the project.

3.2.2 PROJECT RISK MANAGEMENT

FPL identifies significant EPU project risks weekly in the Risk Registers and includes them in the Monthly Operating Performance Report. The probability of each identified risk occurring and the estimated potential cost impact determine the weighted cost value assigned. Mitigation activities and strategies are developed and assigned to specific project team individuals for risk resolution. When each risk is satisfactorily mitigated, the risk is closed in the Risk Registers and removed from the total risk potential estimated for the project.

Project risks are updated and vetted in periodic Key Supplier Meetings that include vendor management, FPL executive management, and EPU project management representatives. EPU conducts a weekly meeting with the Executive Vice President Nuclear Division & Chief Nuclear Officer to update senior level management of project risks and mitigation strategies employed. The Vice President of Uprates also provides project updates to the Nuclear Board Committee periodically to keep the NextEra Board of Directors apprised of project status, outage preparation, and project readiness efforts.

The Executive Vice President & Chief Nuclear Officer also holds daily fleet operations conference calls with all FPL uprate sites. These daily calls provide FPL management at the fleet level the ability to discuss site events, exchange operational best practices, discuss similar operating experiences and solutions, offer insights to problematic conditions, and brainstorm common issues. During outage conditions, these daily calls aid EPU management in a similar way by considering conditions and situations experienced in other uprate projects.

3.2.3 INTERNAL/EXTERNAL AUDITS AND INVESTIGATIONS

2012 AUDITS AND INVESTIGATIONS

In 2012, six audits [REDACTED] of the EPU project were conducted. Of the six audits, five were scheduled and one was an EPU self-audit. Three of the five scheduled audits were completed by external auditors. The self-audit examined augmented staff timekeeping processes at Turkey Point.

The audits conducted during 2012 were [REDACTED]. [REDACTED] [REDACTED] were [REDACTED] and [REDACTED] during the audits, resulting in conclusions that EPU project [REDACTED].

However, an FPL internal audit completed in July 2012 revealed that [REDACTED] at [REDACTED] were made to [REDACTED]. The [REDACTED] was initially opened in late 2011 based upon [REDACTED] made to FPL [REDACTED] that some [REDACTED] receiving [REDACTED] reimbursements were [REDACTED]. FPL [REDACTED] requested an FPL Internal Audit department [REDACTED], and [REDACTED] it as [REDACTED].

The [REDACTED] claimed that, for [REDACTED] purposes, contractors were being permitted to [REDACTED] for [REDACTED] and then [REDACTED], making the assignment [REDACTED]. It was also [REDACTED] that some [REDACTED] had [REDACTED] of the [REDACTED], making them [REDACTED] for [REDACTED].

The [REDACTED] identified that [REDACTED] was being [REDACTED] to a [REDACTED] of [REDACTED]. Based on these findings, FPL Internal Audit opened an [REDACTED] at [REDACTED], completing it in September 2012. That [REDACTED] identified that a small number of [REDACTED] at [REDACTED] had [REDACTED].

A subsequent Internal Audit report was issued in December 2012, and further reviews occurred through April 2013. In all, FPL reversed \$2.4 million of charges from December 2012 through April 2013, removing those costs from the project and its NCRC filings. FPSC audit staff believes that the issue, to this point, is resolved.

But the company has [REDACTED] its [REDACTED] with FPL [REDACTED] at [REDACTED] and the [REDACTED] whose [REDACTED]. That [REDACTED].

Exhibit 14 is a summary of the EPU audits [REDACTED] conducted during 2012.

**EPU INTERNAL/EXTERNAL AUDITS, INVESTIGATIONS, AND REVIEWS
2012**

Reviewer	Audit/ Investigation/ Review	Internal/ External	Completion	Subject
FPL Internal Audit	PSL [REDACTED]	Internal	February 2012	[REDACTED] of [REDACTED]
Experis	2012 annual audit of EPU project expenditures	External	May 2012	Reviewed sample transactions related to project [REDACTED], and [REDACTED] from 2011
Concentric Energy Advisors	Review of EPU project controls	External	March 2012 submitted as testimony	Reviewed EPU system of internal controls in 2011
Experis	Audit of [REDACTED] contracts	External	2Q 2012	Review of [REDACTED] contracts for PSL and PTN
FPL Internal Audit	PSL Contract Workers [REDACTED]	Internal	July 2012	Report of [REDACTED] begun in 2011
FPL Internal Audit	PSL/PTN [REDACTED]	Internal	August 2012	[REDACTED] of [REDACTED] overtime at PSL and PTN
FPL Internal Audit	2012 review of [REDACTED] contract invoicing	Internal	September 2012	[REDACTED] contract and invoicing processes
FPL Internal Audit	PTN Contract Workers [REDACTED]	Internal	September 2012	Extension of [REDACTED] begun in 2011
EPU staff	Self Audit	Internal	November 2012	PTN augmented staffing timekeeping processes
FPL Internal Audit	Additional FPL Contractors [REDACTED] Review	Internal	December 2012	Additional report of [REDACTED] begun in 2011

EXHIBIT 14

Source: Document Request 1.14

2013 AUDITS AND INVESTIGATIONS

Four audits [REDACTED] were scheduled to be completed during 2013 for the EPU project. The annual audit of project expenditures conducted by Experis and the review of EPU 2012 project controls are both completed by external auditing firms. FPL Internal Audit will complete two audits [REDACTED]. **Exhibit 15** is a summary of the audits [REDACTED] scheduled to be conducted during 2013.

**EPU INTERNAL/EXTERNAL AUDITS, INVESTIGATIONS, AND REVIEWS
2013**

Reviewer	Audit/ Investigation	Internal/ External	Completion	Subject
Concentric Energy Advisors	EPU project controls	External	March 2013 testimony	2012 EPU internal controls
Experis	Annual project audit	External	2Q 2013	Review sampling of project transactions for [REDACTED], [REDACTED], and [REDACTED]
FPL Internal Audit	Vendor Audit	Internal	TBD	Reviewing [REDACTED] and [REDACTED] for vendor [REDACTED]
FPL Internal Audit	Overtime Audit	Internal	TBD	Reviewed [REDACTED] at PTN
FPL Internal Audit	Continued [REDACTED]	Internal	March 2013	[REDACTED] of [REDACTED] for payments
FPL Internal Audit	St. Lucie Nuclear Plant [REDACTED]	Internal	March 2013	[REDACTED] of [REDACTED] for payments

EXHIBIT 15

Source: Document Request 1.14

The Concentric review of 2012 EPU project controls was completed in early 2013, concluding that the “EPU project’s procurement functions performed quite well in 2012.” Further, Concentric observed that “FPL appropriately reassessed its contracting structure and assignment of EPU scope, and continued to apply robust procedures to its purchasing activities.”

At the time of publication the three remaining scheduled audits were not yet completed. Commission audit staff will review the audit reports when available.

3.2.4 QUALITY ASSURANCE

FPL’s Quality Assurance (QA) group provides oversight of all safety-related EPU work and major non-safety projects valued greater than \$100,000. Quality Assurance staff assigned to each site conducts quality surveillances and work inspections, provide daily quality summaries, and prepare safety-related nuclear oversight reports. Other Quality Assurance staff members are responsible for completing off-site vendor oversight, including reviews of specifications, manufacturing processes, and delivery of safety-related equipment.

Daily Quality Summary reports are completed by QA evaluators at PSL and PTN. Issues identified are discussed in written observations and provided to QA management for trending and further review. Each report is rated satisfactory or unsatisfactory. If QA observers believe the actions and activities reviewed are safely and satisfactorily completed, and are compliant with practices and procedures the observation is rated satisfactory.

QA issues may range from simple housekeeping conditions at each construction site to challenges with equipment manufacturing quality, requiring QA action and oversight with the manufacturer to remedy conditions. FPL QA is to address all safety-related issues through additional oversight and corrective vendor cooperation. According to FPL Quality Assurance,

there were no unresolved safety-related quality assurance issues impacting the projects during 2012. Audit staff's review of QA Daily Quality Summary reports showed that these reports are used to resolve specific problematic plant conditions and document contractor and vendor quality issues for correction. Audit staff concludes that these reports are a valuable tool to document quality issues and assist in documenting specific actions taken to ensure conditions are improved.

3.3 CONTRACT OVERSIGHT AND MANAGEMENT

Contract oversight and management responsibilities are shared between the EPU Contracts Group, Project Controls, site technical representatives, and the Integrated Supply Chain (ISC). ISC also provides long-lead procurement, contract management, and administrative support. Periodic evaluations of major contractors are completed to document overall performance. Nuclear Business Operations also provides project assistance with capital versus O&M and "separate-and-apart" accounting decisions, as well as scope changes greater than \$250,000, invoice coding, accrual reporting, and budget variance reporting.

3.3.1 BECHTEL PERFORMANCE

As a result of FPL and Bechtel EPC contractual negotiations during 2012, the contract no longer required target pricing or annual contractor evaluations. Therefore, a contractor report card was not prepared as in previous years. FPL also negotiated contractual concessions with Bechtel during 2012, totaling approximately \$60 million, which served to reduce overall project costs. EPU management acknowledges the possibility of additional smaller concessions before the project is completed in 2013.

EPU Monthly Performance Reports show that Bechtel was slow to meet scheduled engineering timeframes associated with outage modifications throughout 2012. A milestone recovery plan was necessary to improve the PTN Unit 4 design, work package planning and pre-outage work. In September 2012, a Pre-Outage Milestone Completion Plan stated that EPU management chose to add additional contractor resources to ensure Bechtel completed the Unit 3 and Unit 4 outages on schedule. While the PSL-1 outage was extended, the PSL-2 outage was completed in less time and for less cost than PSL-1. The PTN-3 outage was extended, and the PTN-4 outage was completed in less time and for less cost than PTN-3.

While Bechtel had some difficulties during the project, the overall performance was successful. Bechtel completed the implementation of four uprates in less than five years, with some balancing of outage schedules. EPU management also noted that Bechtel is one of the elite contractors in the nuclear industry capable of completing such a project as the St. Lucie and Turkey Point uprates. FPL noted that it would likely use Bechtel in future projects and holds the company high on the list of world class companies.

3.3.2 SINGLE/SOLE SOURCE JUSTIFICATIONS

FPSC audit staff reviewed EPU single/sole source justifications completed in 2012 for the St. Lucie and Turkey Point sites. Based on the justifications reviewed, staff observed that the overall volume and quality of information supplied in FPL single/sole sourcing justifications comply with FPL and FPSC procedural requirements.

3.3.3 CONTRACTS GREATER THAN \$1 MILLION

For the final phase of the PSL and PTN uprates additional new contracts were necessary. In 2012, FPL reported 197 EPU contracts with values \$250,000 or greater. During the year, 37 contracts closed, one was cancelled, and 22 were inactive, but remained open. The EPU project initiated 50 new contracts in 2012, originated at \$294.8 million. Eighteen new contracts in 2012 were valued at greater than one million dollars, and totaled \$283.2 million in planned spending. These contracts represent 96 percent of the total new contract dollars in 2012. **Exhibit 16** provides a listing of new EPU contracts greater than one million dollars for 2012.

EPU CONTRACTS GREATER THAN \$1 MILLION EXECUTED IN 2012		
Vendor	Amount	Type
Ames Group LLC	██████████	Single Source
Siemens Energy Inc.	██████████	Single Source
Siemens Energy Inc.	██████████	Single Source
Shaw-Stone & Webster	██████████	PDS
Weldtech Services	██████████	Single Source
Areva NP Inc.	██████████	Replacement
Calvert Company Inc.	██████████	Replacement
Ames Group LLC	██████████	Single Source
J. Givoo Consultants	██████████	Competitive
PCI Energy Services	██████████	Competitive
Shaw-Stone & Webster	██████████	Single Source
Siemens Energy Inc.	██████████	Single Source
Siemens Energy Inc.	██████████	Single Source
Siemens Energy Inc.	██████████	OEM
Williams Specialty Services	██████████	Replacement
Team Industrial Services	██████████	Single Source
Control Components	██████████	Single Source
ABB Inc.	██████████	Competitive
TOTAL	\$283,231,331	-

EXHIBIT 16

Source: Docket No. 130009-EI, Witness Jones, Exhibit TOJ-1, Schedule T-7A, March 2013

Ten contracts over one million dollars were single sourced (\$169 million), one was original equipment manufacturer ██████████, three were competitive (\$16.5 million), three were replacement contracts for others (\$18.5 million), and one was a Predetermined Source Supplier contract ██████████

3.3.4 INVOICE SAMPLING

FPSC staff auditors completed a sample of EPU contract invoices for 2012, as a means of examining invoice approvals, reconciliation of invoice amounts, EPU challenges of invoice amounts when necessary, accruals and short payments, and support documentation.

Invoices for the major contractors, long lead material, and implementation support functions were selected. These invoices represented \$224 million (49.8 percent) of the \$450

million invoiced for St. Lucie and \$431 million (41.9 percent) of the \$1.03 billion invoiced for Turkey Point during 2012.

The results of FPSC staff's invoice review showed that FPL's handling of EPU contract invoices for the project followed established project practices and procedures. Proper approval signatures were present for invoices reviewed, invoice amounts were reconciled, data was challenged where necessary, and questionable amounts were held for payment until researched. Invoice support documentation sufficiently evidenced the amounts invoiced, and any amounts under question. Supporting memos documented communications between FPL and the contractor invoicing agent regarding questionable submissions and information.

3.3.5 CONTRACT MANAGEMENT AND OVERSIGHT

Contract management responsibilities, processes, and oversight are shared responsibilities of the EPU Project Site Manager and Technical Representatives/Contract Coordinators who administer site services. At the completion of authorized work, the Technical Representative/Contract Coordinator is responsible for verifying that the contractor met all obligations and determines if any outstanding contract deliverables exist. These representatives determine whether billed work is completed satisfactorily, make sure the level of approval necessary for invoice payment is present, and close out the contract when all work is completed. If contract work has not been completed as specified in the contract, the vendor invoice is denied and the work must be completed before payment is made.

As the EPU project comes to completion, closeout activities in 2013 will include resolution of outstanding warranty issues. **Exhibit 17** lists unresolved EPU warranty claims for 2012 through May 2013. The largest remaining unresolved, warranty claim involves four EPU contractors totaling \$3.1 million. The FPL share of that claim may be as much as \$1.1 million. Audit staff will review the resolution of these warranty claims in the next NCRC cycle.

UNRESOLVED EPU WARRANTY CLAIMS JANUARY 2012 - MAY 2013				
Vendor	Scope/Equipment	Description	Status	FPL Cost
██████	CRAC Margin Increase (PSL)	U2 Control Room A/C does not maintain required temperature	Unresolved	██████
██████	Feedwater Pumps (PSL)	2A Main Feedwater Pump Seawater injection operating unsatisfactory	Unresolved	███
██████	HCB-08-1B-MSIV (PSL)	Auto trip due to MSIV- 1B failure and rapid closure	Repairs complete, Unresolved	██████
██████	4P1A (PTN)	U4 Steam Generator Feedwater Pump leakage and oil leak from bearing housings	Repairs complete; Unresolved	███
██████	4P1B (PTN)	Bearing housing in 4B Steam Generator Feedwater Pump improperly designed; faulty workmanship	Repairs complete; Unresolved	███

EXHIBIT 17

Source: Document Request 5.13

Bechtel interfaced with both EPU Project and site management to provide contract oversight during the project for its subcontractors. As the EPC contractor, Bechtel coordinated the work of contractors toward the completion of the construction and testing portion of the EPU project. Bechtel also provided work procedures, performance indicators, and on-site monitoring of its subcontractors. FPL states that it ensured Bechtel procedures conformed to FPL procedures and requires them to be updated when necessary.

FPL and Bechtel are both responsible for managing the Engineering, Procurement, and Construction (EPC) contract activities for the duration of the St. Lucie and Turkey Point Uprate Projects. FPL and Bechtel Project Director/Managers together resolve matters relating to the EPC contracts. The Contract Change Control Process for documenting contract scope, schedule, and cost changes is documented in each site's EPC contract with Bechtel.

Changes to the EPC contract scope are handled through project scope change requests or negotiated contract revisions. Change requests are submitted to the FPL Site Project Managers by Bechtel. These change requests are reviewed and vetted by the site managers and the Site Director for approval or denial. Approved project scope change requests become part of the increased scope documents for the contract. Contract revisions also revise major project scope, contract provisions, and revised conditions for the project.

Bechtel's December 2008 EPC contract for St. Lucie was [REDACTED] and [REDACTED] for Turkey Point. The EPC combined contracts for the EPU project originally totaled [REDACTED], but are now estimated to reach approximately [REDACTED] by the end of 2013. Combined EPC contract expenditures in 2012 were [REDACTED]. According to FPL, a portion of the increased EPC contract costs during 2012 reflect extensive engineering revision to design packages during outage implementation, regulatory changes and delays to licensing, and increased personnel and commodity resources required in construction implementation.

EPU Monthly Performance Reports confirm that Bechtel was slow to meet scheduled engineering work timeframes associated with outage modifications during the year. A milestone recovery plan was necessary to improve the PTN-4 design, work package planning and pre-outage work. The April and May 2012 Key Project Issues noted that the trend for the PTN-4 pre-outage remained negative due to Bechtel not meeting the PTN-4 pre-outage milestones. Bechtel's inability to meet key milestone project dates has impacted project outage scope, length, and schedule.

In September 2012, the outlook for PTN-4 improved because of the completion of the Unit 3 outage. However, the pre-outage recovery milestones remained challenged. Finally, in October the majority of the PTN-4 pre-outage work was complete and the final EPU outage was back on track for early 2013 completion.

Delays in NRC LAR approvals during 2012 added some additional EPC project costs. Regulatory changes impacted the EPC contractor by adding project scope to meet NRC license requirements and LAR approval schedules. Additional modifications to the uprate scope require more engineering and construction resources and further increase EPC time and resource costs.