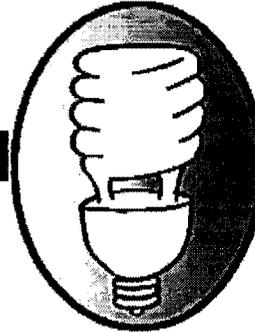


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JULY 2010

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REVIEW OF

Florida Power & Light Company's  
Project Management Internal Controls  
FOR  
Nuclear Plant Uprate and Construction  
Projects

By Authority of  
The State of Florida  
Public Service Commission  
Office of Auditing and Performance Analysis

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*Review of*  
**Florida Power & Light Company's  
Project Management Internal Controls for  
Nuclear Plant Upstate and Construction Projects**

**R. Lynn Fisher  
Government Analyst II**

**David Rich  
Operations Review Specialist**

**July 2010**

**By Authority of  
The State of Florida  
Public Service Commission  
Office of Auditing and Performance Analysis**

PA-10-01-001

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# 1.0 Executive Summary

## 1.1 Purpose and Objectives

At the request of the Florida Public Service Commission's Division of Economic Regulation, the Performance Analysis Section of the Office of Auditing and Performance Analysis conducted this review. This is the third annual review in an ongoing oversight program to examine the adequacy of project management and internal controls employed in the company's uprate and new construction efforts. The time frame covered by this report is January 2009 to June 2010.

FPSC audit staff's previous reports were published in August 2008 and July 2009, entitled *Review of Florida Power and Light's Project Management Internal Controls for Nuclear Plant Uprate and Construction Projects*. Each is available electronically:

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

The focus of this report is on providing an update of events occurring in the past year. For additional historical information, the reader is referred to the 2008 and 2009 editions of this report.

FPSC audit staff reexamined the organizations, processes, and controls used by Florida Power Light Company ( FPL, the company) to execute the Extended Power Uprates (EPU) of St. Lucie Units 1 & 2 and Turkey Point Units 3&4, and the construction of Turkey Point Units 6&7.

Every audit or review undertaken by the Performance Analysis Section has four general objectives:

- ◆ Evaluation of company management to determine how efficiently resources are being used and that adequate control policies and procedures are in place,
- ◆ Identifying areas to improve managerial or operational practices,
- ◆ Evaluating company performance, and
- ◆ Enhancing public and Commission understanding and knowledge of company operations through reporting accuracy.

An additional core objective of the 2010 *Review of Florida Power and Light Company's Project Management Internal Controls for Nuclear Plant Uprate and Construction Projects* is to document key developments and organization changes while reassessing management processes, internal controls, and oversight mechanisms currently in place. The information provided in this report may be used by the Division of Economic Regulation staff to assist in an assessment of the reasonableness of the FPL project cost-recovery requests.

## 1.2 Scope

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

Internal controls are the vital mechanisms used by the company to stay within budget and on schedule. According to the Institute of Internal Auditors' *Standards for the Professional Practice of Internal Auditing*, appropriate internal controls allow the organization to:

- ◆ Produce accurate and reliable data
- ◆ Comply with applicable laws and regulations
- ◆ Safeguard assets
- ◆ Employ resources efficiently
- ◆ Accomplish goals and objectives

Well-constructed internal controls assist with the challenges of risk management and decision making. Risks must be identified and appropriate protections established to prevent, mitigate, or eliminate them. Prudent decision making results from orderly, well-defined processes that address known risks, needs, and capabilities. Adherence to written procedures, effective communication, vigilant internal and contractor oversight, as well as ongoing auditing and quality assurance efforts are essential to ensure that project costs are prudently incurred.

Specifically, according to the Internal Control Integrated Framework designed by the Committee of Sponsoring Organizations of the Treadway Commission, an internal control should consist of five interrelated components. The components are:

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

The synergy and linkage among these components forms an integrated system which reacts to changing conditions. The internal control system must be intertwined with the entity's operating activities. 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 function effectively to conclude that internal operational controls are effective. This report will assess the adequacy of each of these five components for FPL project management.

## 1.3 Methodology

Planning and research for this review were performed in January and February 2010. Data collection, site visits and interviews, analysis and report writing were conducted in March through May 2010. The information compiled in this report was gathered via company responses to FPSC audit staff document requests, a visit to the Turkey Point site, and interviews with key project personnel. FPSC audit staff also reviewed testimony, discovery and other filings in Docket Nos. 090009-EI and 100009-EI.

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

- ◆ Policies and procedures
- ◆ Organizational charts
- ◆ Requests for proposals
- ◆ Contractor bids and proposals
- ◆ Bid evaluation analyses
- ◆ Contracts
- ◆ Project scope analysis studies by FPL and consultants
- ◆ Internal and external audit and investigation reports

## 1.4 Conclusions

### 1.4.1 Turkey Point 6&7 Project Events and Developments

FPL remains committed to bringing two new AP1000 nuclear reactor generating plants into service. However, since FPSC audit staff's previous report, FPL has made significant changes to the estimated in-service dates for Turkey Point 6&7. The original dates were 2018 and 2020, respectively. FPL now estimates the units will come on line in 2022 and 2023.

FPL has also significantly changed cost projections, estimating increases of up to \$989.6 million. The company now estimates the total, in-service cost for Turkey Point 6&7 to be in a wide range from \$12.9 billion to \$18.7 billion.

The company is in the licensing phase and expects licensing efforts to continue as its primary focus through 2011. FPL has chosen to separate the licensing and preparation phases of the project. FPL believes current economic and regulatory uncertainties make expenditures beyond those associated with completion of licensing to be unwise and premature at this time. FPL believes this approach provides the greatest ability to control costs, mitigate risk, and ensure the eventual, safe, and successful implementation of Turkey Point 6&7.

The company did not apply during the Department of Energy's first wave of solicitations for federal loan guarantees. FPL believed the program was insufficiently funded with undefined costs, benefits, and responsibilities. FPL is monitoring the program and will consider applying if future offerings are made by the Department of Energy.

The Combined Operating License Application (COLA) was submitted to the Nuclear Regulatory Commission in June 2009, three months later than originally planned. FPL chose to delay in order to better prepare the application. To date, FPL has received only four Requests for Additional Information from the NRC, and has timely responded to each.

FPL has not signed a comprehensive project construction contract and does not expect to revisit negotiations for one until at least December 2011. Since January 2009, the largest current project contract, for licensing and post-application support increased \$21.6 million. FPL has also extended a resolution of its long lead forging reservation agreement until March 2011. Eventual cancellation could cause FPL to lose a portion of its \$10.8 million reservation fee.

#### **1.4.2 Conclusions and Recommendations**

FPSC audit staff concludes that, in the near term, FPL is primarily focused on obtaining necessary licenses and permits at local, state, and federal levels and answering requests for additional information from various agencies. The company has revised cost and schedule estimates, in response to market and regulatory conditions. As a significant result, long lead forgings and the signing of a major construction contract have been deferred. Though far from inactive, the preponderance of Turkey Point 6 & 7 project execution still remains over the horizon.

FPSC audit staff has no recommendations at this time for the Turkey Point 6&7 project. FPSC audit staff will continue to closely monitor project progress, costs, and controls.

#### **1.4.3 Extended Power Uprate Project Events and Developments**

**EXHIBIT 1** provides a timeline of significant events and the key developments impacting the uprate projects during 2009 and 2010. Most of these events occurred in 2009, with some continuing to impact the project into mid-2010. Each key development and the related impact to project schedule and cost is discussed in Section 3.1.

On May 3, 2010 FPL announced a new EPU project non-binding cost estimate range between \$2.05 billion and \$2.30 billion for the St. Lucie 1&2 and Turkey Point 3&4 uprate projects. The estimate is between \$255.5 million (14 percent) and \$500.5 million (28 percent) greater than the need determination estimate. The increase is based on key events encountered during 2009, expected increases in LAR engineering costs, expected increases in Engineering, Procurement, and Construction (EPC) vendor costs, weighted estimates of project risks, and future unidentified project costs to complete the uprates during 2011 and 2012.

During 2009, FPL's senior management made the decision to replace the EPU Management team. Senior management appears to have believed the management team could not provide the necessary control of EPC contractor estimates and that more aggressive actions were required. FPSC audit staff's opinion is that this change was made in part due to performance issues. Though FPL disagrees, an investigative report by Concentric Energy Advisors, Inc. (Concentric) appears to confirm FPSC audit staff's opinion.

As part of FPL's efforts to identify potential efficiencies and improvements in project work scope and schedule, a mid-course review was completed, resulting in significant scope

revision and increased project scope changes. An outage optimization review conducted in mid-2009 aligned outage and licensing schedules, eliminating overlapping activities, and rescheduling much of the uprate work to longer outages later in the project.

Significant EPU scope, schedule, and budget changes required contract renegotiations to reflect new project scope, reducing contract costs by [REDACTED]. FPL made additional revision to its scheduled submission of St. Lucie Unit 2 License Amendment Request from first quarter 2010 to year end 2010 due to plant technical issues, and could incur [REDACTED] million in additional costs to submit and support the License Amendment Requests.

FPL also initiated a third party assessment and budget estimate by High Bridge Associates, Inc. (High Bridge), costing [REDACTED] for Turkey Point Unit 3 to validate necessary work scope, detailed modification estimates, implementation strategies, and provide a close range of costs.

#### **1.4.4 Conclusions and Recommendations**

Based on the events and developments described above, FPSC audit staff concludes that EPU management was replaced in part due to performance issues. Therefore, FPSC audit staff recommends the Commission closely examine associated project costs in a future proceeding.

EPU Significant Events and Key Developments																			
January 2009 - June 2010																			
Description	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	
Bechtel comes on board, start modules for outages																			
Technical challenges at both sites; adjust LAR schedule to late 2009 and 2Q2010				---															
Bechtel submits excessive manhour estimates; FPL asks for additional estimates					---														
PTN AST LAR Submitted						---													
Scope Changes & Contract Renegotiations					-----														
Outage Optimization Review								---											
Mid-course Review					-----														
EPU Senior Management Changes							---												
EPU Project Reorganization								---											
LAR Schedule Changes									---										
SFWMD adopts 5th Supplemental Agreement for SCA, Monitoring wells at PTN										---									
Atlantic Civil files against 5th Supplemental Agreement & PTN Monitoring Plan												---							
Highbridge Assessment & Budget Estimates for PTN													-----						
Project Nonbinding Cost Estimate																		---	

**EXHIBIT 1**

Source: FPL response to Document Request 1.1, 1.2, 1.4, 1.6, 3.1, 3.4, 3.5 and 3.13

## 2.0 New Construction of Turkey Point 6&7

### 2.1 Turkey Point 6&7 Key Project Developments

#### 2.1.1 Significant Events

##### In-Service Date Delay

FPL has chosen to defer the in-service dates for Turkey Point 6&7. From the original projection of 2018 and 2020, respectively, the on line dates have been delayed to 2022 and 2023 (EXHIBIT 2).

Turkey Point 6&7 Project Milestones			
Phase		Original	Revised
Licensing	Start	2007	2007
	Complete	2012	2013
Site Preparation	Start	2010	2014
	Complete	2012	2016
Related Facilities	Start	2010	2014
	Complete	2018 / 2020	2022 / 2023
Generation Plant	Start	2013 / 2015	2016
	Complete	2018 / 2020	2022 / 2023
Transmission Facilities	Start	2010	2014
	Complete	2014	2023

**EXHIBIT 2**

*Source: Schedule TOR-7, May 3, 2010 Testimony*

In the near term, FPL's concentration on securing necessary licenses or regulatory approvals will remain the focus for the remainder of 2010 and 2011. FPL denies that schedule changes are in any way a result of FPSC rate case decisions.

FPL attributes the multi-year delay decision for both reactors to revised expectations regarding the licensing process and their impact on moving ahead with long lead procurement and core contracts. In addition, the company believes that insufficient schedule clarity currently exists to set a clear path toward major construction activities.

In-service deferral is not uniform for the two units. Turkey Point 6 is deferred four years (2022) and Turkey Point 7 is delayed three years (2023). FPL states that original in-service dates were conservatively framed, assuming two years between units. Company expectations now indicate the time between units can be reduced to one year.

FPL believes in-service deferral comes at a cost. In the company's current estimates, final cost is projected to increase as much as \$989.6 million (5.8 percent) beyond the original need determination filing estimate.

### **Licensing and Preparation Phase Separation**

The original project plan divided the Turkey Point 6&7 project into four phases – exploratory, licensing, preparation, and construction. Some preparation activities were to overlap with the licensing phase. FPL has now decided to distinctly separate the two phases and is now focused strictly on licensing efforts.

The FPL internal project review led to a decision to separate the phases. Expenditures initiating preparation phase activities were deemed premature. Over \$58 million, earmarked for Engineering Design and Procurement, that would have been part of an EP or EPC contract, was deferred beyond 2011. An indication of the cost impact can be seen in the actual/estimated 2010 spend rate of \$5,068,289 and the projected 2011 rate of \$4,720,004. Initiation of Preparation phase activities is now projected for late 2013 or early 2014.

### **COLA Submission**

FPL submitted its Combined Operating License Application, or COLA, to the Nuclear Regulatory Commission on June 30, 2009. This date represented a three-month delay over the original target date.

The company chose to delay its COLA submission in order to further refine content, stating the decision to delay was based on adherence to its deliberate, stepwise approach to project management. Specifically, the slippage was the result of a change in scope, leading to inclusion of site-specific geotechnical information for Turkey Point 6&7 that addressed concerns similar to those the NRC identified in the Progress Energy Levy COLA review.

According to FPL managers, the delay helped make the COLA submission more comprehensive and, in their opinion, reduced the number, scope, and severity of subsequent NRC Requests for Additional Information (RAI). To date, FPL has received four RAI's, an exceptionally low number compared to industry norms that often number in the hundreds. FPL responded to each RAI. FPL states that schedule impact from its decision to delay COLA submittal cannot be determined but may reduce the overall schedule because of fewer RAI's.

The COLA was docketed by the Nuclear Regulatory Commission on November 11, 2009. The Nuclear Regulatory Commission issued the FPL COLA review schedule in late May 2010. This schedule proposes issuance of a final Environmental Impact Statement in October 2012 and a Final Safety Evaluation Report in December 2012.

The current estimate for completion by the Nuclear Regulatory Commission is approximately 30 months. Another 12 months are allocated for mandatory final hearings. That brings the total review to an estimated 42 months, slightly longer than the current industry average of 41 months. Adhering to the estimate, FPL's COLA review for Turkey Point 6&7 should be completed in either the late 2013 or early 2014.

FPL recognizes that there may be further delays in the COLA process because the NRC is currently reviewing several other applications. Seven of those currently under review are also based on the AP1000 design. Four have in-service dates prior to FPL.

Expenditures increased approximately \$5 million for COLA preparation in 2010, a direct result of FPL choosing to address issues cited by the NRC in other applications rather than wait to do so through the RAI process. Bechtel COLA-prep contract change orders drove 2010 spending beyond original estimates. According to FPL, this is essentially money moved forward from future projections and is not expected to have any impact on overall project cost.

#### **Construction Contract Deferred**

FPL has not reached a decision on whether to contract with only an Engineering, Procurement and Construction contract or with separate contractors for the EP and C portions of the project. The company states that it feels no pressure to enter into either type of mega-contract given the recently adjusted in-service dates for Turkey Point 6&7.

FPL recognizes the uncertainty associated with signing either type of contract later rather than sooner. Costs for materials and capital are known today but difficult to predict in the future. Demand for skilled manpower may be high when FPL is ready to sign a contract. For now, FPL believes a wait-and-see posture best serves company interests and does not expect to revisit negotiations for a contract until at least the end of 2011.

FPL does not believe there are negative schedule or cost impacts from deferring a decision on selection of a contract type (EPC or EP & C). The deferred in-service dates allow FPL to study which type will be a better fit, provide more benefit, contain less risk, control costs, and offer the greatest value for expenditures.

#### **Withdrawal of the Limited Work Authorization (LWA)**

FPL included a Limited Work Authorization application with its June 2009 COLA. An approved LWA would have allowed certain preparatory construction activities in advance of approval and issuance of the combined operating license for full construction and operation.

However, factors caused FPL to change its mind about the value of an LWA. First, the NRC informed petitioners that it could not review LWA and COLA requests concurrently. FPL analyses also revealed a smaller window of opportunity than had previously been anticipated regarding completion of LWA construction activities. As a result, FPL management no longer believed an LWA retained sufficient value or leveraged enough schedule advantage to proceed. FPL also did not want to accept risk of possible COLA review delays caused by a separate LWA approval process. In a November 2009 white paper entitled "*Decision to Withdraw Limited Work Authorization Request*," FPL memorialized its rationale for terminating the LWA. It was withdrawn later that month.

#### **Obtaining Other Regulatory Approvals**

FPL is seeking an Environmental Resource Permit from the Army Corps of Engineers (ACOE). The ACOE is the federal agency with jurisdiction over wetlands likely impacted by Turkey Point 6&7 construction and supporting infrastructure. The Army Corps of Engineers will utilize the Environmental Impact Statement developed by the NRC in the COLA process as its record of decision. Therefore, the timeline for review and approval of an Environmental Resource Permit is estimated to follow issuance of the final Environmental Impact Statement by about 6 months.

FPL proposes using some existing transmission right-of-way within Miami-Dade County. Two areas represent potential challenges. FPL wants to swap right-of-way owned in the western part of the county for land east of Everglades National Park. Although Federal legislation in 2009 directed the exchange, required reviews are currently underway. FPL expects to complete this swap sometime before the end of 2010. Environmental issues and the interests of multiple federal and state agencies will affect the ultimate approval of this segment.

At the state level, FPL continues work on its Site Certification Application. Submitted in June 2009, the Florida Electrical Power Plant Siting Act establishes a 15-month period for a decision. Interest by multiple state agency stakeholders resulted in a large number of inquiries. FPL is continuing to respond to questions from the Florida Department of Environmental Protection to support a determination of completeness. Such a determination culminates in the Project Analysis Report and scheduling of land use hearings, anticipated in early 2011.

Land use hearings lead into the Site Certification Application Hearing expected in June/July 2011. FPL believes its application to be complete and comprehensive, that it will move through the review without major delay. A decision by the Florida Power Plant Siting Board is expected in late 2011.

Included in FPL's June 2009 SCA submission were provisions for new transmission lines to interconnect and integrate Turkey Point 6&7 into FPL's system and the bulk electric system. FPL states that it cannot meet the FPSC need determination to reliably interconnect or comply with mandatory reliability standards without approval for each of these lines:

- ◆ Two 500kV lines between the proposed Clear Sky substation on the Turkey Point site and the existing Levee site substation in northwest Miami-Dade County,
- ◆ A 230kV line between the proposed Clear Sky substation and the existing Pennsuco substation in northern Miami-Dade county,
- ◆ A 230kV line between the proposed Clear Sky substation and the existing Turkey Point substation (all within FPL property), and
- ◆ A 230kV line connecting the proposed Clear Sky substation to the existing Davis substation in southeast Miami-Dade County and the existing substation in downtown Miami.

Line routing has been investigated for the past two years, with input from local governments and agencies as well as FPL customers and non-customers located along the routes. A key FPL proposal before the Miami-Dade County Board of County Commissioners was adopted in late April 2010. This proposal supports temporary infrastructure (roadway) improvements, some using existing transmission corridors.

Also at the local level, FPL is focusing efforts on cooling water, transmission rights-of-way, and infrastructure issues. FPL's current cooling water plan relies on reclaimed wastewater from Miami-Dade County as the primary source. An agreement on reclaimed water must be reached with the county for implementation. Radial collector wells at the site would provide a secondary source, drawing from Biscayne Bay. The backup supply does not require a similar agreement but does require approval within the Site Certification Application process.

Potential challenges exist for the water sources. Commercial and environmental permitting issues remain for reclaimed water and its pre-treatment. Use of this water may lead to regional usage concerns and questions about contaminants. Radial well technology is relatively new and expected to generate close scrutiny. And the considerable interest for all water-related issues in South Florida may lead to more extensive regulatory review and/or modeling studies.

Schedule turbulence in 2010 and 2011 is possible at all levels requiring regulatory approval, but largely outside FPL control. To preclude delays, the company states that it is closely coordinating with all agencies, communicating regularly, timely responding to Requests for Additional Information, and making applications complete.

#### **Long Lead Equipment Forging Reservation Agreement Deferred**

A Forging Reservation Agreement between FPL and Westinghouse Corporation was signed in 2008. This agreement reserved manufacturing capacity for specialized, ultra-heavy forgings required by the AP1000. The original agreement between the companies included a reservation fee of \$10.8 million from FPL and had an expiration date in December 2009.

Before the original expiration date, the parties agreed to a six-month extension without changes or costs. Changing the termination date from December 2009 to June 2010 allowed FPL to complete project schedule reviews in early 2010.

An FPL white paper written in March 2010<sup>1</sup> stated the project schedule reviews provided clarity of two factors influencing long lead forgings. First, FPL decided not to initiate a construction contract in the near term. Further, changing conditions have reduced worldwide market demand for such specialized manufacturing capability.

Given those considerations, FPL and Westinghouse agreed to another extension of the long lead forging reservation agreement. The latest change preserves the original terms and specifications, but extends expiration to March 2011.

FPL recognizes that keeping the agreement intact is in its best interest, preserving flexibility and cost while holding the FPL place in line. It also recognizes risk that at some point the reservation agreement may be dissolved instead of extended. Terms specify a refund of the reservation fee, less 15 percent for administrative costs, if Westinghouse can remarket the manufacturing slot. The amount if Westinghouse is unable to remarket the slot is not specified. In that case, FPL could lose a greater portion of its reservation fee.

#### **DOE Loan Guarantee Application Deferred**

FPL states that the company had two reasons not to submit a Department of Energy (DOE) Loan Guarantee Program application during the first solicitation. Initially, the federal government allocated a relatively small amount (\$18 billion) for what FPL believed might be a large number of applicants. FPL also considered the Loan Guarantee program largely undefined regarding participants' cost, benefits derived, or loan structure. FPL states that the application deadline may have required the company to rush through its technology selection process.

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<sup>1</sup> "Decision to Extend Forging Reservation Agreement", exhibit SDS-16, May 3, 2010 testimony.

Still, FPL is monitoring the first wave of DOE loan guarantees. The company believes this will result in more clarity about costs, benefits, and structure. Should additional funds be made available and another solicitation occurs, the company will consider application.

The decision not to join the first wave of applicants had no impact on the original FPL timetable and did not contribute to the deferral of in-service dates. There will be a fee due to the federal government for guaranteeing any loan. This fee should be offset by lower interest rates and costs offered by lenders who believe a government guarantee lowers their risk.

**Organizational Changes**

Overall, project organization remains unchanged. There are two principal organizations, Project Development and New Nuclear Projects, each led by a vice-president. They are jointly responsible for coordinated, integrated project execution. The Vice-President, New Nuclear, is responsible for NRC licensing, project engineering, and construction. The Vice-President, Project Development, is responsible for all other aspects of project development, including site certification, local zoning, public relations, and FPSC regulatory issues.

Some key personnel changes have occurred, however. The vice-president of New Nuclear Projects retired early in the second quarter of 2010. Leveraging expertise, project familiarity and experience with the Bechtel contract, the Director of Nuclear Licensing assumed the responsibilities of the vice-president, New Nuclear Projects. Some New Nuclear personnel have also temporarily been reassigned to the uprate project as a result of the schedule shift. According to FPL, this will help control New Nuclear project costs. FPL plans to bring these personnel back to the New Nuclear Project when the project transitions to construction.

**2.1.2 Turkey Point 6&7 Project Cost Estimates**

It is important to revisit how FPL arrived at current project cost estimates. The original FPL determination of need cited a cost range from \$12.1 billion to \$17.8 billion. This total is divided into four categories -- site selection, pre-construction, construction, and Allowance for Funds Used During Construction (AFUDC). Original FPL estimates are shown in **EXHIBIT 3**:

<b>Turkey Point 6&amp;7 2007 Determination of Need Cost Estimates</b>		
<b>Category</b>	<b>Low</b>	<b>High</b>
Site Selection	\$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 3**

*TOR-2, Section 8(f), May 3, 2010 Testimony*

Current FPL project cost estimates appear below, in **EXHIBIT 4**. The all-in cost of bringing Turkey Point 6&7 online is now predicted to be \$12.9 billion to \$18.7 billion, with the likelihood that it will be in the upper end of the range.

<b>Turkey Point 6&amp;7</b>		
<b>Current Total In-Service Cost Estimates</b>		
Category	Low	High
Site Selection	\$6,118,105	\$6,118,105
Pre-construction	\$217,831,895	\$244,883,895
Construction	\$8,988,395,000	\$13,162,439,000
AFUDC	\$3,641,949,106	\$5,333,202,845
TOTAL	\$12,854,294,106	\$18,746,643,845

**EXHIBIT 4**

*TOR-2, Section 8(f), May 3, 2010 Testimony*

Turkey Point 6&7 site selection is complete. Actual expenditures were 24 percent lower than originally predicted.

Current low and high end estimates for pre-construction are 53.2 percent and 47.3 percent lower than the estimates contained in the original FPL need determination. Most is not actual savings, however. The majority of costs are simply deferred from pre-construction to construction due to the separation of the project's licensing and preparation phases.

Moving pre-construction costs to construction resulted in that phase having the largest change in estimated cost, from nearly \$840 million more on the low end, to as much as \$1.04 billion in additional costs for the high end estimate. The low and high are up 10.3 percent and 8.6 percent respectively from the original filing.

In the company's most recent estimate, project final cost is expected to increase \$771.3 million (6.4 percent higher than the low end estimate) to as much as \$989.6 million (5.6 percent, higher than the high end estimate) compared to the original need determination filing.

**2.1.3 Project Feasibility Analysis**

Project feasibility analysis is conducted annually for the Turkey Point 6&7 project and results are presented to FPL executive management. The analysis consists of multiple scenarios, varying conditions and assumptions to determine feasibility while providing an additional element of accountability control and project oversight. Each annual study uses updated fuel cost forecasts, environmental forecasts, capital cost estimates, and sunk costs.

FPL states that the analytical methodologies and approaches used in the 2010 feasibility study are nearly identical to those of the 2007 need determination and in the 2008 and 2009 analyses. However, some assumptions used in the 2010 analysis changed from previous years, including

- ◆ Changes to the Turkey Point Unit 6&7 in-service dates,
- ◆ A prediction of lower future natural gas prices, and
- ◆ Less consumer demand beginning in 2015 and extending through 2040.

The company states that regardless of the changes to critical assumptions, the 2010 feasibility analysis predicts the project remains cost effective in each of seven base case scenarios for fuel and environmental compliance costs. The company states that this year's

study supports continuation of PTN 6&7 project, and that the project remains feasible, viable, and offers substantial benefit over any non-nuclear alternatives.

## **2.2 Turkey Point 6&7 Project Controls and Oversight**

FPL believes that Turkey Point 6&7 controls and oversight are adequate and responsive for moving the project forward. Subject matter expertise is in place, providing information, project oversight and fiscal accountability.

The company states that the project controls and oversight staff observed in prior years remain in place with subject matter experts and team members focused on moving Turkey Point 6&7 forward. FPL managers state that the primary project controls are:

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

The internal and external oversight processes consist of:

- ◆ Executive management,
- ◆ Subordinate managers,
- ◆ Subject matter experts (SME),
- ◆ Mutually reinforcing schedules and cost controls, and
- ◆ Regular updates on risk, cost, and schedule.

Project Controls group provides management with regular reports detailing schedule, budget, costs, vendor performance and risks. Primavera 3 remains the principal scheduling software, capable of monitoring and updating functions. It can sort data and produce customized management and status reports.

Project Managers, Technical Representatives, and Quality Assurance personnel monitor vendor performance, ensuring task completion is timely and within budget. FPL Integrated Supply Chain (ISC) sourcing specialists and contract managers closely monitor contract changes and contractor performance. Schedule and cost anomalies are reported to management. These reports assist management to identify and prioritize risks, develop remedies, and to implement solutions.

### **2.2.1 Changes to Project Controls**

FPL made some changes to project controls since the 2009 FPSC staff audit report. Among these are development and use of new tools to record and assess risk, or to document important project decisions. In an acknowledgment by FPL of the value offered by outside assessment, several newly developed tools resulted directly from recommendations contained in a project management review conducted by Concentric Energy Advisors.

FPL now uses memoranda or “white papers” to memorialize and explain key decisions for the Turkey Point 6&7 project. FPL believes memoranda convey important control characteristics to the project going forward. Each memorandum is a record of the current thought processes and decision architecture at the time of decision. Each provides a significantly higher level of real-time and historical documentation for decisions. And, management states that these documents furnish higher transparency regarding project management.

### **2.2.2 Changes to Risk Management**

FPL developed a High Level Risk Summary in 2009 to record an assessment of project risks over time. The report is used to provide detail on the probability of occurrence for each risk and a separate analysis of the impact to project implementation, cost, and schedule. FPL believes that this report establishes ownership, provides greater detail, and is reviewed more frequently than previous risk summaries.

### **2.2.3 Changes to Management Oversight**

The company states that it engaged in a diverse effort during the past year to improve management oversight processes. These actions included:

- ◆ Updating of Process Control Guidelines,
- ◆ Mandatory training on expense reporting, local disbursement, and payroll practices,
- ◆ Improving the Monthly Cost Report and Management Meeting processes, and
- ◆ Thorough review of team reports and updating of team instructions/forms.

### **2.2.4 Audits**

There are no internal or external audits in progress at this time. FPL has none planned for the balance of 2010. A schedule for 2011 has yet to be developed. However, FPL states that it believes auditing and quality assessment play an integral role in keeping projects on time, costs on target, and management attuned to project tempo. The company states that it uses a comprehensive set of audit activities to monitor, assess, and document project activities and that such internal control reviews and financial audits support prudence determination.

Three audits or reviews conducted during the past year are of special interest:

- ◆ A sub-tier audit of Bechtel Power Company,
- ◆ An audit of project expenditures by Jefferson Wells International, Inc, and
- ◆ A process and controls review by Concentric Energy Advisors, Inc.

The Bechtel audit began in February 2009, with audit findings issued in June 2009. The audit examined sub-tier vendors whose expenditures exceeded \$100,000. The period covered was January 2008 to January 2009. Inappropriate markups totaling \$45,060 were discovered.

FPL recovered in full, deducting the amount from a subsequent payment to Bechtel.

#### **Jefferson Wells Audit**

The Jefferson Wells audit focused on the propriety of project expenditures from January through December 2009. The purpose was to determine if expenditures were project related, had

been charged properly, and in accordance with existing controls. Areas examined included employee expense reports and payroll, third party invoices, and reconciliation of amounts included on the FPSC filings.

In its conclusion, Jefferson Wells opined that FPL currently has in place adequate controls and that costs incurred are being appropriately charged to the project.

#### **Concentric Project Controls Review**

The review by Concentric Energy Advisors provided FPL with feedback on company efforts to develop the new deployment schedule, FPL's process to evaluate and revise project cost estimates, benchmarking cost estimates against those of similar new U.S. construction, and an assessment of the feasibility analysis. Concentric concluded that processes to revise project schedule and cost estimates are reasonable and produce appropriate results. Controls remain effective and largely unchanged. Concentric also concluded that FPL's feasibility analysis is a reasonable approach to evaluating project costs.

At the conclusion of the review, Concentric made 12 specific observations addressing possible changes or improvements. Concentric states that FPL adequately responded to each observation, adopting four and keeping three more under consideration for implementation. Changes adopted by FPL include using memoranda to memorialize key decisions, establishing witness points for manufacturing activities, creating spreadsheets to track pending invoice credits, and improving the transparency of invoice review and approval processes.

FPL believes three others are adequately addressed by existing company practices or procedures. A recommendation for updating Project Instructions annually was adopted, but modified to biennially. Finally, FPL considers the recommendation to develop a workforce contingency protocol a matter for future planning, when the project pace increases and moves nearer to actual construction.

One Concentric recommendation not adopted by FPL is noteworthy, that of an annual review to ensure Bechtel is billing in accordance with the terms and conditions of the contract. Concentric believed this to be particularly important regarding Bechtel subcontractors. FPSC audit staff agrees that accurate, concise, and timely billing is particularly key regarding subcontractors. This is an issue that FPSC audit staff believes should be reconsidered for implementation as the project moves to the construction phase, with significant accelerated pace and scope.

FPL does not believe an annual Bechtel review is necessary but retains the option to conduct one if future conditions warrant. The company is confident that existing contract management and controls personnel are already providing a sufficiently high level of scrutiny to contracts, contractors, their subcontractors, and every invoice received for payment. FPSC audit staff agrees that, at the present state of the project, biennial reviews are sufficient. However, FPSC audit staff believes that an annual review of Bechtel and subcontractor billing has merit and should be reconsidered for implementation by FPL as the project moves to construction.

### 2.2.5 Quality Assurance

The organization and goals remain unchanged. Quality Assurance (QA) and its fundamental operating reference, the Quality Assurance Oversight Plan, exist to hold vendors accountable for process and product quality. QA is budgeted and directed by New Nuclear Projects, with procedures and process control exercised by Nuclear Assurance. Independence is maintained by the QA program manager reporting directly to the Director of Nuclear Assurance.

FPL project management is aware of the importance of such assessments and as a result focuses attention on it. Initiatives since April 2009 include:

- ◆ Oversight of vendors' on-site activities
- ◆ Contractor procedure review
- ◆ Development of new QA programs
- ◆ Reviewing NNP project procedures

During oversight observations of vendor activity, QA assessed vendor compliance with contract terms and conditions as well as with FPL procedures. No areas of non-compliance were discovered.

QA also undertook a self-assessment to insure compliance with NRC regulations and to determine whether FPL had vulnerabilities similar to those the NRC identified during audits of other utilities' new nuclear applications.<sup>2</sup> This FPL QA review concluded that some vulnerability existed. Violations from other nuclear projects seen by FPL as potentially relevant to the Turkey Point 6&7 project included:

- ◆ Failure to control and identify procedures developed and implemented under the QA Program for the COLA, (FPL believed this partially applicable),
- ◆ Failure to include instructions for notifying appropriate levels of management if a condition adverse to quality is identified, (partially applicable), and
- ◆ Procedures did not include records retention requirements (applicable).

As a result, QA Program plan QI-2-NNP-01 - "*Quality Assurance during the Pre-Construction Phase of the PTN 6&7 New Nuclear Project*" - was revised, staffed, and distributed. A need to improve training regarding 10CFR21 was also identified. This training has been developed, scheduled, and is ongoing.

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<sup>2</sup> NRC Inspection 05200012/2009201 & 05200013/2009201 from the South Texas Project, March 2, 2009; NRC Inspection 05200025/2009-201 & 05200026/2009-201 from the Southern Nuclear Operating Co., April 16, 2009.

## **2.3 Turkey Point 6&7 Contract Oversight and Management**

There have been no revisions to the New Nuclear Projects contractor oversight and management plan since April 2009. However, there were changes to existing contracts as well as new contracts signed during the last year. These are discussed in more detail below. However, the key story during the last year is deferment of contracts originally expected to be either already in place by now or to be exercised in the near future.

Delays anticipated for in-service dates for Turkey Point 6&7 have created a significant shift in changes to existing contracts or the signing of new ones. In 2009, FPL decided that expenditures toward the preliminary design, procurement, and construction planning steps contained significant risk of being inefficient or premature. The company decided to defer such activities until the licensing process is further along and believes this strategy provides additional risk control.

FPL has made one warranty claim against the [REDACTED] contractor, [REDACTED] [REDACTED] for nonconformance and incomplete work. Informed in December 2009 that hundreds of pages of the [REDACTED] were missing from the [REDACTED] FPL began an investigation to determine the circumstances. Subsequently, FPL issued a warranty claim against [REDACTED] in January 2010. In accordance with contract provisions for [REDACTED] warranted that its work would meet high standards of care, skill, and diligence, in keeping with industry standards and expected levels of professional competence. FPL expects [REDACTED] to absorb all costs and expenses associated with preparation and filing of the correction. FPL allowed [REDACTED] to continue work because a full resolution is expected by mid-2010.

Bechtel has the primary contract for COLA and Site Certification Application preparation and support while specialty contract engineering companies support the Army Corps of Engineers permit and other permit applications. Westinghouse/Shaw will provide support to FPL and Bechtel in review of the COLA.

### **2.3.1 Contracts Executed or Modified**

From January 2009 through April 2010, FPL initiated 65 new contracts or change orders. Most are relatively low in value, particularly when compared to the overall project cost estimates. Combined, these contracts and change orders represent less than 1 percent of the estimated total project expenditures.

Forty-six (71 percent) of the contracts are valued below \$500,000. Twelve change orders (18 percent) had no monetary value at all, either correcting administrative errors or adjusting terms and conditions of original contracts or an earlier change order.

FPL executed 11 contracts or change orders greater than \$250,000 (**EXHIBIT 5**). Four have values greater than \$1 million - Bechtel Power [REDACTED], BVZ Power Partners Nuclear [REDACTED], Golder Associates [REDACTED] and Environmental Consulting and Technology [REDACTED]. Totals reflect the original contract plus all subsequent change order increases.

**Turkey Point 6&7  
Contracts Greater than \$250,000**

Status	Contactore	Description	Amount	Type*
Open	Bechtel Power Corporation	COLA/SCA Prep and RAI Support	██████████	C, S, P
Open	BVZ Power Partners- Nuclear	Engineering and Construction Plan	██████████	S,P
Open	Golder Associates Inc.	Post-SCA submittal support	██████████	S
Open	Environmental Consulting and Technology	SCA Support	██████████	S
Open	Electric Power Research Institute	Advanced Nuclear Technology	██████████	S
Open	Westinghouse Electric Co.	COLA/SCA Prep and RAI Support	██████████	S, P
Open	Ecological Associates	Seagrass Survey / Report	██████████	S
Open	Eco Metrics, Inc.	Environmental Consulting	██████████	S
Closed	Optimal Geometric	Right-of-way survey	██████████	S
Open	HDR Engineering	Aquifer Performance Testing	██████████	S
Open	McNabb Hydrogeologic Consulting, Inc.	Post-SCA submittal, UIC Licensing support	██████████	S

\* C = Competitive Bid, S = Single Source, and P = Predetermined Source

**EXHIBIT 5**

*Source: Schedule T-7, FPL Testimony, March 1, 2010*

The Bechtel contract is currently the largest by a wide margin. The Bechtel contract is nearly ██████████ than the sum of all other contracts greater than \$250,000 -- ██████████ to ██████████. Competitively bid and signed in 2007, the original Bechtel contract now has 20 change orders. All change orders are documented by single or predetermined source justifications. Change orders from January 2009 through April 2010 added ██████████ and, without further extension, the contract will expire in late 2011. Three of the change orders are valued at more than \$1 million (EXHIBIT 6).

**Turkey Point 6&7  
Change Orders Greater than \$1 Million – 2009**

Contractor	Description	Amount
Bechtel Power Corporation	CO #18 - COLA / SCA Preparation and Support	██████████
Bechtel Power Corporation	CO #12 - COLA / SCA Preparation and Support	██████████
Bechtel Power Corporation	CO#14 - COLA / SCA Preparation and Support	██████████

**EXHIBIT 6**

*Source: DR-4.4*

FPSC audit staff reviewed all change orders for adherence to FPL internal controls, processes, and content. Particular scrutiny was given to those change orders valued over \$1 million. FPSC audit staff found no anomalies and is satisfied that all change orders were necessary for COLA and SCA preparation and support, and that they do not result from poor performance or errors by either party. FPSC audit staff bases this on the close inspection of the change orders as well as the extremely low number of Requests for Additional Information FPL has received from the NRC.

### **2.3.2 Changes to Contract Management**

Changes to FPL contract management in 2009 were evolutionary. FPL refined existing controls and procedures rather than creating new ones. Contract managers assert that any invoicing anomalies are quickly discerned under the present system of review. Every invoice is scrutinized by at least two reviewers as it moves through the payment processing system. Monthly, every invoice received during the month is reviewed against prevailing labor rates, hours are tallied by sub-job, and all travel expenses are reviewed for cost appropriateness, project applicability, and required justifications. FPL states it retains the option of a wholesale audit of Bechtel in the future, auditing as needed instead of according to a specified time interval.

## 3.0 Extended Power Uprate

### 3.1 Extended Power Uprate Key Project Developments

FPL characterizes the status of the Extended Power Uprate (EPU) projects as in the early stages of the Engineering Design Modification Phase, with the License Amendment Request (LAR) analyses nearing completion. Most long lead equipment is ordered and expected to be delivered to support the Implementation Phase, with the exception of possible scope changes. FPL is currently refining the project scope and budget, as significant events during 2009 have modified the project implementation activities.

In early 2009, Bechtel had begun staffing for engineering, procurement, and construction activities. Bechtel began completing the Project Integration Plan and engineering design modification work packages necessary to implement the St. Lucie and Turkey Point uprates. Bechtel also began developing procedures to guide the engineering, procurement, and construction activities of the uprate.

In April 2009, FPL encountered plant-related technical issues impacting its LAR schedule, causing EPU management to extend the submittals to the second quarter 2010. Later in 2009, FPL revised the expected submittal date to fourth quarter 2010. This change resulted from the need for additional engineering and analysis to meet NRC requirements within the LAR submittal.

In May 2009, Bechtel submitted its estimated project man-hour forecast to FPL for the uprate projects. Bechtel forecast ██████ man-hours to complete the project compared to a previous estimate of ██████ man-hours. As a result of the large difference in estimates from Bechtel, EPU Management asked Bechtel to provide additional estimates in June 2009, including a best-case/worse-case estimate, and including revised outage windows with possible scope reductions.

These events led original EPU Management to begin a mid-course review of the project work scope, design modifications, and estimated schedule and costs. As FPL continued detailed LAR engineering, it became apparent that FPL should re-evaluate the scheduling of its planned outages, project scope, resources, and budget.

In early July 2009, FPL Group senior management made a decision to replace the original EPU project senior management. FPL Group senior management wanted new EPU senior management to reassess the project scope, challenge the EPC contractor estimates, consider alternative EPC vendors for at least a portion of the work, and engage third party support to assist in advancing the completion of project cost estimates. FPL's Chief Nuclear Officer announced the EPU senior management change on July 15, 2009, along with other nuclear fleet organizational changes. The new EPU senior management team began in August 2009, and soon thereafter, an EPU organizational structure change was announced.

As a result of the events described above, FPL modified its EPU outage schedules to reflect necessary changes in the License Amendment Request schedule, address project technical challenges, and minimize the overlap of scheduled unit outages under the previous schedule. Eight Key Project Developments impacted the St. Lucie and Turkey Point EPU projects during 2009 into 2010. These Key Project Developments discussed below include:

- ◆ New uprate project nonbinding cost range estimate
- ◆ Replacement of EPU management and re-structure
- ◆ Mid-course review
- ◆ Outage optimization review
- ◆ Scope changes and contract renegotiations
- ◆ Schedule changes to the License Amendment Request
- ◆ Third party assessment and Turkey Point budget estimate
- ◆ Three new significant risks identified in 2010

### 3.1.1 New Uprate Project Non-binding Cost Estimate

FPL states that the completion of the St. Lucie Unit 1 LAR, and the work being done on the remaining LAR submittals in 2010, allowed FPL to identify project modifications necessary for the project and to quantify known project risks. FPL considers the project to be in the early stage of design engineering, and notes that an uncertainty of project scope and total costs remains. As FPL continues to complete final design engineering, regulatory licensing reviews, and construction planning, the company will receive additional certainty to more accurately forecast total EPU project costs.

FPL now believes that a range of costs, rather than a single cost estimate, is the best way to forecast the project costs. The original non-binding cost estimate provided in FPL's need determination filing in September 2007 was \$1,798 million. This figure was based on preliminary feasibility and scoping studies performed by FPL during that time frame.

**EXHIBIT 7** shows the estimated Construction and AFUDC & Carrying Charges from the September 2007 need determination filing. Generally, uprate projects have no site selection and pre-construction costs included because the work is completed on existing plant facilities at existing company locations.

<b>Extended Power Uprate 2007 Determination of Need Cost Estimate</b>	
Category	Estimate
Construction	\$1,446,304,000
AFUDC & Carrying Charges	\$351,696,000
TOTAL	\$1,798,000,000

**EXHIBIT 7**

*TOR-2, Section 8(f), Witness Jones, May3,2010 Testimony*

The 2010 FPL estimated range of costs for the St. Lucie and Turkey Point uprates is shown in **EXHIBIT 8**. FPL suggests that this range of costs is now a better method to examine the estimated project costs due to the current uncertainties contained in the project scope, budget, and schedule.

**Extended Power Uprate  
2010 Total Completion Cost Estimates**

Category	Low	High
Construction	\$1,899,860,223	\$2,140,660,840
AFUDC & Carrying Charges	\$153,602,007	\$157,850,612
TOTAL	\$2,053,462,230	\$2,298,511,452

**EXHIBIT 8**

*TOR-2, Section 8(f), Witness Jones, May 3, 2010 Testimony*

Based on the current estimate range, the low total cost estimate is \$255.5 million (14 percent) greater than the need determination estimate. The high total cost estimate is \$500.5 million (28 percent) greater than the need determination filing estimate.

FPL attributes the differences in the original project need estimate and the current forecast range to increased costs for expected LAR submittal and defense, as well as increased EPC vendor costs expected due to scope additions identified through the review of implementation modifications.

FPL believes additional EPC costs are expected due to the complexity of completing the modification implementation work for the uprates. These costs will be necessary to support work to secondary plant floor elevations and existing plant structures, necessary to carry the heavier equipment and modifications installed during the EPU.

FPL explained that limited work space and equipment staging costs will increase, in conjunction with the plant refueling activities during the outage, and the complexity of modifying numerous pieces of equipment. Lifting and moving replacement equipment to be installed takes a rigging plan, equipment staging, and heavy lift devices, to accomplish the scheduled work. These project costs also increase as new scope and activities are added to the project.

The company stated that performing work safely in an operating plant requires that federal, state, and local regulations are followed. Schedule integration, directing when and where heavy equipment cranes and other devices will be used, and where equipment will be staged to support work activities are important costly activities. Costs associated with training, instructing, monitoring and overseeing work forces also figure into project cost increases when plant change modification scope is increased.

FPL believes these and other project activities not yet identified will further increase the range of costs to complete the uprates by year end 2012. Currently, FPL estimates the high end of the cost range to be \$2,300 million.

In May 2010, FPL witness Jones announced in his testimony that FPL will produce between 399MW and 463MW from the St. Lucie and Turkey Point uprates. FPL's current estimate is that a total of 450MW will be produced by the uprated units. The original FPL estimate provided during the need determination proceeding was for a total of 208MW from Turkey Point Units 3&4 and 206MW from St. Lucie Units 1&2, for a total of 414MW from the

uprates. The newly estimated difference in generation represents an additional 36MW, of generation, or 8.7 percent more MW than initially specified in the need hearing.

FPL also completed its annual EPU project feasibility analysis. Using the new 450MW production level, rather than the best case production level of 463MW, and the high end of the new non-binding project cost range (\$2,300 million) FPL concluded that the EPU project continues to remain cost-effective. FPL projected the EPU nuclear uprates to be cost-effective in all 7 of 7 base case scenarios used to assess the project feasibility.

### **3.1.2 EPU Management Replacement and Restructure**

In 2009, FPL changed EPU project management teams and re-structured the EPU project organization. The new EPU project management team was tasked with more aggressive management of the EPC Contractor, and the new EPU project organization was structured to decentralize much of the project support responsibilities to the on-site EPU teams.

#### **Removal of EPU Senior Management Team**

In July 2009, FPL senior management changed EPU project management teams. The significance of this event is that FPL senior management believed the original team was not performing as expected. Senior management believed that a change in EPU management was necessary to ensure the project quality and forecasted costs were not compromised. FPL senior management noted<sup>3</sup>:

Both previously assigned VP level managers were no longer involved in the EPU project because FPL Group senior management decided that changes to these leadership positions would enhance FPL's ability to bring the EPU projects to successful completion, promote effective succession planning and talent utilization, and improve the quality and timeliness of forecasted project costs.

According to FPL, the original management team had not been aggressive in keeping cost estimates from the EPC Contractor under control. FPL senior management stated that the original EPU project team was not able to accomplish this. FPL senior management further noted:

One of the biggest drivers of the decision was FPL Group senior management's identification during the second quarter of 2009 of the need to more aggressively explore and implement ways to test, validate and report cost estimate information such as that which the company had been receiving from its Engineering, Procurement and Construction ("EPC") contractor for the uprates project, Bechtel Power Corporation. FPL Group senior management believed that the newly assigned EPU senior management team was better suited to carry out this task.

FPL senior management stated that Bechtel's estimates for additional staffing to complete scheduled outage work had not been challenged aggressively enough by the original

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<sup>3</sup> FPL response to staff data request DR-8.9.

EPU management team during late 2008 and continuing into 2009. FPL senior management stated:

One of the specific business challenges was that during late 2008 and continuing into 2009, FPL had been receiving Bechtel submissions that proposed substantially more staffing to perform the uprate work than Bechtel had previously estimated. The company wanted more aggressive actions taken to robustly challenge Bechtel's proposals, and to determine whether Bechtel's proposed staffing and resulting costs were reasonable.

Examples of the types of actions that FPL Group senior management wanted new EPU senior project management to implement included: reassessing project scope, challenging Bechtel's estimates, considering alternative EPC vendors for at least a portion of the work, and engaging third party support to assist the new management team in advancing the project cost estimates.

The FPL senior management statements above indicate that EPU management performance was questioned during the period from late 2008, when the EPC Contractor was approved, through the removal of the original EPU management team in July 2009. During this time frame, Bechtel had mobilized staffing to the project and was in the process of completing initial deliverables of the St. Lucie and Turkey Point EPC contracts.

In the period January through May, Bechtel began conceptual engineering of plant modification packages for the St. Lucie and Turkey Point initial outages. In May 2009, Bechtel submitted a man-hour estimate for the projects to EPU management. This estimate was 700,000 man-hours greater than expected by FPL and the company began examining reasons for the estimated increases, as well as potential strategies for attacking the increases. EPU management asked Bechtel to reconsider the estimate, identify potential efficiencies to reduce costs, and submit a new estimate in June 2009.

FPSC audit staff believes that FPL senior management identified performance issues within the EPU management team that may have allowed Bechtel-related costs to rise unnecessarily. The failure of EPU management to adequately question and manage those costs was cited as one of the reasons FPL senior management changed the EPU management team in July 2009. Since May 2009 the following key EPU management changes were made:

- ◆ Vice President Power Upgrades transferred to Nuclear Projects and later retired
- ◆ Vice President EPU-Implementation resigned for performance issues
- ◆ Turkey Point Site Director was terminated for performance issues
- ◆ Director of EPU Projects resigned
- ◆ EPU Project Control Supervisor transferred to Nuclear Projects and later resigned

FPL later completed efforts including the mid-course review, outage optimization, renegotiation of contracts, changing of LAR submittal dates, and hiring a third-party consultant to evaluate the Turkey Point Unit 3 project and develop a detailed cost estimate with recommended modifications. FPSC audit staff believes that some portion of these efforts to

correct the St. Lucie and Turkey Point uprate project schedule and budget were the results of the EPU management poor performance.

However, FPSC audit staff believes some of FPL's efforts could have been part of the iterative process of project evaluation, due to the natural progression of designing and implementing a complex project such as the four uprates. Based on the events and developments described above, FPSC audit staff concludes that EPU management was replaced in part due to performance issues. Therefore, FPSC audit staff recommends the Commission closely examine associated project costs in a future proceeding.

#### **Actions of New EPU Senior Management Team**

As discussed above, FPL senior management identified specific types of actions it expected from EPU project management. FPL Group senior management expected EPU project management to reassess project scope, challenge Bechtel estimates, consider alternative EPC vendors for a portion of the work, and engage third party support to assist in advancing project cost estimates.

In August 2009, the new EPU senior management team began operation and soon announced a new organizational structure for the EPU project. The new team later completed the outage optimization review, modified the licensing submittal schedule, and hired a third-party consultant to evaluate the project scope and budget for Turkey Point Unit 3 in December. These efforts are discussed further in sections 3.1.3 through 3.1.8.

A new EPU organizational structure implemented in August 2009 further moved responsibilities for project implementation to each of the sites. The EPU organization continues to be headed by the VP Nuclear Power Uprates. The Controls Director, Implementation Owner-South, Nuclear Cost Recovery Interface Manager, Licensing and Regulatory Interface, and Implementation Owner-Midwest report directly to the VP Nuclear Power Uprates. The Quality Assurance function reports on a dotted line basis to the VP Nuclear Power Uprates.

The new Implementation Owner-South position provides direction to the Turkey Point and St. Lucie EPU Site Directors. The EPU Director position at Juno Beach was no longer required, and those responsibilities were transferred to the Implementation Owners. The EPU Modification Director position at Juno Beach was also no longer required, and those responsibilities were transferred to the individual EPU Site Directors, who have a modification Engineering Manager and organization reporting to them.

A dedicated Project Controls organization established at each site reports directly to the Controls Director at Juno Beach, and has dotted line responsibility to the Site Director. Day-to-day implementation of EPU project controls activities occurs at the individual site level, with consolidated monthly reporting and oversight being completed at the Juno Beach level. The current EPU organizational structure reduced the size of the core team at the Juno Beach corporate offices, while the majority of the EPU Project organization is now functioning at the respective sites.

### **3.1.3 Mid-Course Review**

In mid 2009, FPL undertook a mid-course review to reassess the scope, schedule, and costs for the EPU projects. EPU management stated that the mid-course review reduced or eliminated significant work scope and identified additional cases where increased scope changes were necessary. A summary of some items considered, and scope changes made at each plant site, as a result of the mid-course review are discussed below.

#### **Turkey Point 3&4**

The mid-course review tested the information previously received through scoping reviews, engineering studies, and system assessments conducted in the 2007-2008 time frame. FPL began to look at possible ways to reduce project costs and implement efficiencies when the EPC Contractor costs were forecast beyond the milestone amounts stipulated in the contract, and numerous other technical challenges arose within the project.

Examples of the Turkey Point 3&4 scope changes due to the mid-course review include decisions regarding the condensate pump and steam generator feedwater pump. Original EPU scope included replacing the condensate pumps and motors, and maintaining an installed spare condensate pump selection. The original scope also included the replacement of the steam generator feedwater pumps. The mid-course review examined four options, and recommended installing three new condensate pumps and using the existing steam generator feedwater pumps.

The original EPU scoping study called for the replacement of all feedwater heaters (1-6) at each unit. During the mid-course review, the decision was re-evaluated and FPL determined there was no need to replace feedwater heaters 1-4. Therefore, only the number 5 and number 6 feedwater heaters were scheduled to be replaced.

Revised recommendations were made to retain the four feedwater heaters, develop and perform pre-EPU inspections to confirm the material condition of feedwater heaters, and confirm that no modifications are required prior to the EPU. In addition, the recommendation included developing post-EPU inspection plans for each feedwater heater, developing trend data, and implementing digital upgrades to the entire feedwater heater level control system.

The initial EPU scope for spent fuel pool cooling was to install a temporary cooling system for each unit during the installation of new heat exchangers for both units. The mid-course review and evaluation identified that smaller supplemental heat exchangers could be installed without interrupting the normal cooling system operation. FPL will retain the current spent fuel pool heat exchanger and install a small supplemental heat exchanger, eliminating the need for the temporary cooling system additions.

Other modifications removed from the Turkey Point EPU scope, as a result of the mid-course review, are the main generator exciter rewind being done as a risk management issue and recommended to be deleted from EPU scope, and the steam dump to condenser valves recommendation to retain the existing condenser steam dump valves.

The removal of these scope items from the Turkey Point EPU project significantly reduced some costs. However, during the mid-course review period other modifications and

scope changes were identified that offset some or all of the savings from the changes described above. EPU management states that as the modification work packages are completed, in late 2011 the project's final scope, budget, and schedule will be further refined. However, based on the changes identified to date, the anticipated project risks, and the remaining work to be completed, FPL has established a new uprate project non-binding cost estimate range for the total EPU project, approximately 14 percent to 28 percent higher than the original need determination estimate for the project.

### **St. Lucie 1&2**

As with Turkey Point Units 3&4, major scope elements of St. Lucie Units 1&2 were evaluated during the mid-course review. Several key scoping changes were identified including an exciter refurbish/rewind in the original EPU scope review. During the mid-course review, FPL determined through closer evaluation that the exciter itself does not require modification to handle increased excitation at uprate conditions. Therefore, the exciter was deleted from the EPU scope.

The original EPU scoping study for the number 5 feedwater heaters at St. Lucie recommended replacing the feedwater heaters including the relief valves and vent stacks. The original scoping study concluded that under EPU operating conditions the heaters would not provide the recommended ten percent margin above the design pressure. Replacement feedwater heaters would be designed to EPU conditions to provide the required margin. The EPU scoping study recommended a detailed review of the feedwater heaters at EPU conditions by the FPL vendor contracted for the review of the St. Lucie Unit 1&2 number 5 feedwater heaters at EPU conditions. The recommendation of the study was to modify certain equipment rather than replacing the feedwater heaters as originally planned.

FPL's plan to replace all existing pneumatic level control systems with a digital level control system at the St. Lucie Units was reconsidered during the mid-course review. As a result, FPL determined that the modification of all pneumatic controls was not required to support EPU operating conditions. Therefore, the accepted recommendation was to limit EPU scope to those controls associated with a heater or moisture separator reheater being replaced, rather than replacing all existing pneumatic level control systems.

During the mid-course review FPL also re-evaluated the original decision to install a new section to the existing switchgear and rewind or replace the condensate pump motor. FPL determined that the pump re-powering is not required for EPU. FPL concluded that the modification corrects an existing design deficiency and removed the modification from the EPU scope. The pump re-powering work will be completed under plant maintenance.

Additional modifications removed from the St. Lucie EPU scope as a result of the mid-course review included the circulating water pump refurbishment which was determined to be a maintenance item, condenser material upgrades and repairs were removed from EPU and placed into plant budget, and the condensate pump rotating element replacement for Unit 1 was determined to be acceptable for EPU operation.

The removal of these scope items from the St. Lucie EPU project significantly reduced some costs. However, during the mid-course review period other modifications and scope changes were identified that will offset some of the savings from the changes described above.

### **3.1.4 Outage Optimization Review**

In early August 2009, FPL directed Bechtel to provide a preliminary scope list of Project Change Modifications for the first outage of Turkey Point Unit 3. Bechtel was requested to develop a resource-loaded engineering schedule and estimated cost for each of the 18 listed modifications for the outage. FPL EPU management also directed Bechtel to revise the project work plan to reflect a new outage optimization scenario of short and long outages (35 days and 88 days) to level engineering activities and modify the existing outage schedule.

FPL explained that the purpose of the outage optimization scenario was to better align the outage schedule with anticipated changes in the LAR licensing schedule, and to reduce potential outage overlaps between the St. Lucie and Turkey Point schedules. FPL noted that the existing evenly-staged 55-day to 65-day outage events included overlapping work activities for some of the scheduled outages. This presented engineering, manpower, and other challenges. FPL realized that the existing outage schedule would need to be replaced with one including shorter initial outages followed by longer subsequent outages. FPL states that the outage optimization review eliminated overlaps of the previous schedule, allowed some work planned for the first outage to be moved to the second, and will allow FPL to complete EPU projects within the original established schedule time frame of 2012.

In the event that work or equipment delays are experienced with either short or long outages, FPL could move final work into a third outage if necessary. Although the potential risk of a third outage existed even with the original outage schedule, such action would delay the full benefits of the uprate until at least the next outage cycle in 2013 or 2014. If EPU work is extended to a third outage, FPSC audit staff believes project costs will certainly increase.

### **3.1.5 Scope Changes and Contract Renegotiations**

During 2009, the need for more detailed LAR engineering, the mid-course review, and the outage optimization review helped FPL further revise and refine the uprate project scope, schedule, and budget. These efforts also necessitated that FPL renegotiate certain contracts with vendors due to scope reductions, modifications, and additions.

During the period May 2009 through February 2010, FPL made between 250 to 300 contract revisions to 80 existing contracts' scopes, terms and deliverables. FPL's EPU Contracts Group stated that the vast majority of these changes reflected FPL scope refinements.

FPL states that the greatest impact to long-lead equipment contracts was caused by the mid-course review and outage optimization activities. FPL estimates that the net impact of the renegotiated contracts between May 2009 and February 2010 decreased the total amount of EPU contracts by approximately \$893,000. According to FPL, the net change to the Turkey Point EPU contracts increased approximately \$3.2 million, while the net change to the St. Lucie EPU contracts decreased by approximately \$4.1 million. FPL noted that the changes in the contracts

for Turkey Point Units 3&4 were as a result of the Mid-course Evaluation and the Outage Optimization efforts during 2009.

### 3.1.6 License Amendment Request Schedule Change

In April 2009, EPU management adjusted its expected License Amendment Request submittal dates for the four units to late 2009 through the second quarter 2010. FPL explained that the reason for extending the Turkey Point Units 3&4 dates into 2010 was a 2008 NRC policy change, which constrained electric utilities from filing more than one application at a time with the Commission. FPL noted that this “de-linking” decision required the Alternate Source Term LAR submittal to be filed and reviewed independently of the EPU LAR, effectively lengthening time frames for completing the NRC license approval process. An Alternate Source Term LAR addresses the licensing basis by adopting an alternative source term radiological analysis methodology for a potential Loss of Coolant Accident as allowed in Title 10 of the Code of Federal Regulations, Part 50, Section 50.67.

As shown in **EXHIBIT 9**, FPL planned to file four independent LARs with the NRC during the 2009-2010 time frame. The St. Lucie Unit 1 EPU LAR was initially scheduled for the fourth quarter 2009, followed by Unit 2 in the first quarter of 2010. FPL had intended to submit an Alternate Source Term LAR for Turkey Point Units 3&4 in the second quarter of 2009, followed by an EPU LAR for both units in the second quarter 2010. As scheduled, FPL filed the Turkey Point Alternate Source Term LAR for Units 3&4 in June 2009.

<b>Extended Power Uprate Projected / Actual LAR Submittal Dates</b>			
<b>Unit</b>	<b>As of May, 2009</b>	<b>As of May, 2010</b>	<b>Submitted</b>
Port St. Lucie 1EPU LAR	4 <sup>th</sup> Quarter 2009	2 <sup>nd</sup> Quarter 2010	April 2010
Port St. Lucie 2 EPU LAR	1 <sup>st</sup> Quarter 2010	3 <sup>rd</sup> Quarter 2010	-
Turkey Point 3&4 AST LAR	2 <sup>nd</sup> Quarter 2009	2 <sup>nd</sup> Quarter 2009	June 2009
Turkey Point 3&4 EPU LAR	2 <sup>nd</sup> Quarter 2010	3 <sup>rd</sup> Quarter 2010	-

**EXHIBIT 9**

*Source: FPL Responses to DR-3.5*

#### Turkey Point 3&4

Several notable events delayed the Turkey Point EPU LAR submittals during 2009, requiring a LAR Recovery Plan. In each case, FPL and its contractors identified corrective actions necessary to improve results, and recover to meet the established project schedule.

#### Westinghouse Recovery Plan

The first event involved the Westinghouse containment analysis and long term cooling analysis needed to support the EPU LAR for Turkey Point Units 3&4. FPL reports that this effort took significantly longer to address than was originally forecast. FPL took steps to identify how to reach acceptable results for the EPU LAR over a number of months, using revised inputs and analyses to guide the resolution effort. A Westinghouse Recovery Plan was designed, to reforecast the completion of necessary calculations and LAR report sections under their scope, and FPL updated the project schedule accordingly. The Recovery Plan was followed and Westinghouse returned to the new LAR target schedule.

#### **LAR Recovery Plan**

Later in 2009, a second event impacted the LAR schedule for Turkey Point 3&4. In some cases, FPL found there was insufficient detailed design information to base an evaluation of acceptability under EPU conditions for a number of areas. FPL stated that the number of issues requiring management action exceeded the capability of the site team. FPL then assigned critical technical leadership staff to the effort and developed action plans for each technical issue. These action plans were added to the project schedule, and FPL believes the submittal date for the Turkey Point Units 3&4 EPU LAR will be in early to mid July 2010.

FPL notes that the Turkey Point licensing schedule is likely to extend if the NRC does not allow FPL to submit the EPU LAR, targeted for June 2010, prior to the NRC approval of the Turkey Point Alternate Source Term submittal. FPL would be forced to wait until after the NRC rules on the approval for the Alternate Source Term LAR, currently estimated to be completed in June. If the NRC delays the approval of the Alternate Source Term LAR, and does not allow FPL to submit the EPU LAR as scheduled, the EPU LAR for Turkey Point could be delayed.

#### **Site Certification Application Condition of Certification**

The third event impacting the Turkey Point 3&4 EPU project was related to conditional certification activities for the Site Certification Application. On October 14, 2009, the South Florida Water Management District adopted the Fifth Supplemental Agreement, and closed the remaining open condition of site certification. The agreement includes a requirement for additional monitoring wells and a monitoring plan to begin two years prior to and after the completion of the Unit 3&4 uprates. FPL is currently proceeding with the implementation of the groundwater monitoring program and development of the monitoring plan.

FPL determined that the results of the cooling canal system monitoring plan at Turkey Point are related to current operations. Therefore, funding for the monitoring plan is separate from the EPU budget and handled through the Environmental Cost Recovery Clause. FPL believes there are no expected challenges to the Turkey Point 3&4 uprate project schedule or costs due to cooling water requirements or conditions. However, FPL notes that on December 10, 2009 Atlantic Civil, Inc. filed an amended petition for formal hearing on the Fifth Supplemental Agreement with the South Florida Water Management District. The timing and outcome of this proposed hearing are not currently known. According to FPL, the full impacts of the notable events described are yet to be determined.

#### **St. Lucie 1&2**

Two notable events were experienced during 2009 that also delayed the LAR efforts for St. Lucie Units 1&2. The first event happened as FPL work progressed for the St Lucie EPU LAR. A number of technical issues arose that were not originally envisioned by FPL. FPL states that these issues challenged their ability to obtain successful results for the LAR, on the first attempt, in some cases due to expanding regulatory standards. FPL determined that it could not continue to support work product reviews and technical resolutions for both St. Lucie Unit 1 and St. Lucie Unit 2 EPU LAR projects at the same time. Therefore, FPL temporarily placed EPU LAR work at St. Lucie Unit 2 on hold to focus on the Unit 1 LAR activities. FPL began actions to define and schedule resolution steps for known technical issues, refine resource estimates, and recruit and assign additional qualified resources.

During this time, the company examined ways of leveling project schedule resource demands to match available resources and minimize schedule impacts. As a result of these actions, FPL delayed the St. Lucie Unit 1 EPU LAR submittal date to April 16, 2010 and the St. Lucie Unit 2 submittal to October 15, 2010.

The second notable event impacting St. Lucie EPU LAR efforts involved plant cooling water discharge temperature limits. FPL identified that under post-EPU operation, heated water exiting the discharge system would exceed operational heat limits prescribed by the Florida Department of Environmental Protection during portions of the summer peak use period.

This condition would require generation curtailment for portions of the summer peak period after the EPU was implemented, unless regulatory revisions were approved. FPL applied to the Florida Department of Environmental Protection for a revision to the St. Lucie discharge temperature limits. FPL states that the requested permit revision meets all Florida water quality standards, and would ensure plant curtailments would be unlikely after the EPU is completed.

FPL's decision to slow the St. Lucie Unit 2 LAR analysis and focus on St. Lucie Unit 1 carried additional time and expense to the project. The increase in time was necessary to resolve technical challenges, and to perform additional scope for the technical issues. FPL has estimated that the additional costs to resolve technical challenges for the St. Lucie Unit 2 LAR engineering effort were between [REDACTED] dollars. The estimated cost impact for completing additional scope necessary for both the St. Lucie Unit 1 and Unit 2 LAR technical challenges is expected to reach between [REDACTED] dollars. FPL has included a weighted risk value of an additional [REDACTED] dollars in its risk matrix in anticipation of potential delays due to NRC review of the LAR, which could lead to additional analyses, or modifications.

Potential legal challenges, or negative monitoring results could cause the South Florida Water Management District or the Florida Department of Environmental Protection to order additional conditional approval requirements. If this occurs, it is possible that the EPU project could experience additional project delays and costs. However, FPL believes that the probability of the cooling canal system monitoring plan impacting the EPU remains low.

#### **NRC LAR Approvals**

FPL believes the 14-month NRC approval schedule for EPU LARs will support the currently established EPU implementation dates, although significant challenges are being addressed by project management. FPL acknowledged that it is attempting to resolve other challenges identified during the LAR process including:

- ◆ Initial EPU analyses showed less operating margin than required for regulatory approval,
- ◆ Existing design information was insufficient to justify EPU conditions,
- ◆ Regulatory standards pertaining to spent fuel criticality have been expanded, and
- ◆ The lack of available qualified engineering resources could cause future project delays.

FPL pointed out that the NRC License Amendment Request approval process can take longer if Requests for Additional Information (RAIs) are not answered in a comprehensive and timely manner. FPL has only received a small number of RAIs for the initial Turkey Point Alternate Source Term LAR, in early 2009. FPL notes that it is trying to respond as rapidly as possible to the NRC, but that additional RAIs may be following later, and could possibly impact the project schedule and costs. Therefore, FPSC audit staff believes some potential exists for project schedule delays and increased costs in 2010 and 2011, as a result of the NRC LAR reviews and RAI process.

### **3.1.7 Third Party High Bridge Assessment of Turkey Point Unit 3**

In December 2009, FPL contracted High Bridge Associates, Inc. to provide a third-party bottom-up estimate of the Turkey Point Unit 3 uprate project. FPL chose an outside estimator because of an expectation that a third-party estimate would be significantly more detailed than one FPL could complete internally, and provide a more comprehensive range of costs, project risks, implementation strategies, and detailed estimates for recommended modifications. FPL noted in its selection of High Bridge that the company's extensive experience examining project risks, options, scope, strategies and costs, would produce a finished report whose analysis would be integral to project management of the Turkey Point Unit 3 project. FPL also believes that analysis, insights, and lessons learned from the High Bridge report will be transferrable to the remaining uprate projects.

In early May 2010, High Bridge briefed FPL on the project and provided its initial draft report. The draft report consists of four volumes -- executive summary and explanation of methodologies employed, along with three notebooks of modification-by-modification analysis. High Bridge had no substantial findings in the draft report.

After reviewing the draft for accuracy, validation of assumptions, and duplications or omissions, FPL asked High Bridge to revise certain portions. Revisions included a fuller, more simplified explanation of estimating processes, risk methodology, and risk models designed to improve understanding of readers who are not professional estimators or familiar with High Bridge analytical methods.

In June 2010, FPL states that it worked with High Bridge to better understand and reconcile differences between the estimates and FPL design specifications. This process was intended to assess and improve the accuracy of those estimates.

That same month, FPL again asked High Bridge to revise the draft, focusing specifically on the Turkey Point 3 scope of work, common modifications between Unit 3 and Unit 4, the Unit 3 proportionate share of indirect and distributable costs, and the results of risk analyses for each modification. FPL requested these changes to better match the draft to specific Unit 3 scope of work and to modifications analyzed in detail by High Bridge.

Also in June 2010, FPL used detailed portions of the High Bridge draft in a cost reconciliation process with Bechtel. FPL indicates that it used information for nine specific Unit 3 modifications, for which design engineering was 90 percent complete. FPL was able to

identify potential cost savings through this process, attainable if Bechtel executed the plans as discussed in the reconciliation process.

The High Bridge assessment provides insight into additional scope changes, modifications, risks, and cost estimates associated with the Turkey Point Unit 3 uprate. FPL intends to use the detailed review by High Bridge as validation of the revised Bechtel work scope, forecasts, and designs, for the Turkey Point Unit 3 uprate project, and to possibly apply this or a similar validation approach to remaining unit uprates. FPL notes that all budgeting for the EPU project is currently being reviewed to further refine the uprate project costs. FPL indicates that it may request High Bridge to estimate costs for the remaining uprates at Turkey Point and St. Lucie, and that the effort may continue into 2011.

### **3.1.8 New Significant Risks Identified in 2010**

In March 2010, FPL identified three new significant risks that represent potential schedule and cost impacts to the Turkey Point EPU projects. These three significant risks add a total weighted risk value of [REDACTED] to the project. These and other project risks are followed monthly on FPL's Risk Register for the Turkey Point Project. The monthly Risk Registers track the status of these and other project-related risks, risk mitigation strategies, and progress to date in resolving risks.

#### **Bechtel Additional Staffing Request**

In March 2010, Bechtel provided FPL with a request for additional staffing to complete the Turkey Point EPU projects totaling [REDACTED]. FPL responded to Bechtel that it needed additional information by March 18, 2010 to support the increase.

Since that time, FPL says that it is reviewing Bechtel's recent trends for supplemental construction staffing for upcoming outages and is aligning current staff with the execution strategy. In the interim, FPL has approved several additional construction staff positions necessary to prepare for the upcoming Turkey Point Unit 3 outage. FPL notes that it is calculating a forecast variance and is considering Bechtel's recent trends before making a final decision on the Bechtel request.

#### **Pressure Discrepancies**

FPL has found discrepancies between the design pressure used for the Siemens Turbine Upgrade Contract and actual plant parameters, and estimates that costs to resolve this issue will reach [REDACTED]. Currently, several options are being reviewed including, replacing the main steam internal valve and the main steam control valve, removal of the flow nozzle, and increasing the average coolant temperature. FPL is also evaluating the impacts of each option.

Since March 2010, FPL states that engineering review and analysis has been completed by Shaw and FPL to resolve the discrepancies between the Main Steam Pressure design used for the Siemens Turbine. FPL decided to modify plant parameters, by replacing the main steam isolation and check valves with valves of lower differential pressure. This modification required FPL to change the contract. FPL states it is also removing existing main steam flow nozzles and relocating the flow measurement device for each steam generator. The increase in project costs to resolve these differences is estimated to be [REDACTED].

### **Start-Up and Testing Staffing and Support Budget Underfunding**

In March 2010, EPU management told FPL senior management that the start-up and testing staffing and support budget for the St. Lucie and Turkey Point uprate projects had been under-funded by approximately [REDACTED] dollars. FPL reviewed the start up staffing plan at both sites for accuracy and consistency to more accurately compare costs related start-up and testing budgets experienced at other sites.

According to FPL, it transferred the Turkey Point start-up and testing responsibilities from the EPC Contractor to FPL's project staff, and completed the staffing plan and budget in the first quarter of 2010. Staffing and budget requirements were based on the proposed modification scope identified through the fourth quarter of 2009 and reflected the testing required to complete those modifications for Turkey Point Units 3&4. The current Turkey Point Start-Up and Testing Staffing budget is approximately [REDACTED].

The current St. Lucie budget for Startup and Testing Staffing was developed, and approved by EPU senior management, in the second quarter of 2010. The St. Lucie EPU staffing requirements and budget were developed based on the proposed modification scope identified through the first quarter of 2010. These included start-up and testing requirements for the identified modifications to implement the EPU modifications at St. Lucie Units 1 & 2. The current St. Lucie EPU Startup and Testing Staffing budget is approximately [REDACTED].

Further assessments of these issues in the future may increase or decrease the estimated costs at risk. Each of these risks is an ongoing challenge to the project, and will be followed by EPU management through FPL's monthly Risk Registers until resolved.

## **3.2 Extended Power Uprate Project Controls and Oversight**

EPU Project controls and oversight were described in previous annual FPSC audit staff reports entitled *Project Management Controls for Nuclear Plant and Construction Projects* which were filed as testimony in 2008 and 2009. The uprate project uses a myriad of scheduled daily, weekly, monthly, and ad hoc meetings, conference calls, schedules, reports, executive presentations, and technical challenge boards, to monitor EPU project schedule and costs, and to inform and involve FPL executive management.

EPU project controls also include the Extended Power Uprate Project Instructions (EPPIs), as methods and procedures guidelines for project specific activities. The Nuclear Work Process Procedures (NWPPs) are maintained by Bechtel as engineering, procurement, and construction contractor. FPL also maintains an EPU Governance and Oversight Protocol that describes the project purpose, scope, direction and management expectations. This document was revised in May 2009.

### **3.2.1 Changes To Controls and Oversight**

FPL made modifications to its EPU project controls and oversight during 2009, to improve existing procedures and implement new procedures where needed. Some control changes were recommended by Concentric Energy Advisors, as a result of its EPU project

controls review. The control and oversight modifications completed in 2009, and those currently planned for 2010 are discussed below.

### Changes to Project Controls

EPU management eliminated Weekly VP Conference calls, implemented site specific project management controls, made revisions to EPU Project Instructions (EPPIs), and implemented the Bechtel EPC Nuclear Work Process Procedures (NWPPs) during 2009. FPL explained that the call was redundant to the increased number of Chief Nuclear Officer briefings, and was eliminated. In addition, FPL continued to modify its Project Management controls during 2009. **EXHIBIT 10** shows FPL site level project management controls implemented for the St. Lucie and Turkey Point projects.

Extended Power Upgrade Project Management Controls		
	Description	Location
1	Plan of the Day Accountability meeting every workday with key personnel to review and report on daily work plans and look ahead.	Both
2	Monthly Cost Reviews with FPL management and Bechtel (EPC Contractor) with focus on forecast at completion.	St. Lucie
3	Risk Review meeting with managers once a week.	Both
4	Review Key Performance Indicators (KPIs) with managers once a week.	Both
5	EPU Leadership meeting once a week with Bechtel and FPL site managers to discuss project strategies and progress.	Both
6	Plant Change Modifications (PCMs) 8 week look ahead meeting once a week.	Both
7	EPU Alliance meeting held on a biweekly basis.	Both
8	Bechtel Schedule Performance (SP) and Cost Performance (CP) meeting once a week.	Both
9	Senior management Integrated Supply Chain (ISC) meeting once a week.	Both
10	Work Package Development Review meeting once a week beginning in early 2010.	Both
11	Change Control Board Review Meeting with managers once a week to review and approve Change/Trend at site level.	Turkey Point
12	Project Challenge Meeting once a week starting in 2010.	Turkey Point
13	Project Station Work Control Meeting once a week.	Turkey Point

#### EXHIBIT 10

Source: Response to EPU DR-1.6c

Most controls are the same at both sites, but EPU management at each site has flexibility to determine whether to implement each of the listed controls. FPSC audit staff believes there are benefits for having consistently similar controls for both sites, but also realizes that there are differences in the control needs for each plant site.

**EXHIBIT 11** lists the newly added, revised, and deleted EPPIs during 2009. As shown in the exhibit, four new EPPIs were completed, 11 were revised, and six were deleted.

In addition, Bechtel has an established set of policies and procedures that guide it through the project. These Nuclear Work Process Procedures are required to conform to FPL's policies and procedures, as well as all regulatory requirements for nuclear construction and operation. The EPC contract specifies that a Project Implementation Plan be developed and presented to FPL. Part of the Project Implementation Plan is the establishment of Nuclear Work Process Procedures. Between July and December 2009, Bechtel and FPL EPU management completed the documentation and conformance of Bechtel NWPPs for the EPU projects.

**Extended Power Uprate  
Project Management Instructions**

No.	Description	New	Revised	Deleted
EPPI-180	EPU Nuclear Cost Recovery	✓		
EPPI-820	EPU Project Environmental Control Program	✓		
EPPI-920	EPU Environmental Control Program	✓		
EPPI-1010	EPU Hurricane Response Plan (subsequently incorporated into EPPI-810)	✓		
EPPI 410	Project Plans and Tasks			✓
EPPI 420	Project Governance and Oversight Document			✓
EPPI 440	Field Activity Monitoring Plans			✓
EPPI 470	EPU Project Recovery Plans			✓
EPPI 480	Work Package Planning Standard			✓
EPPI 490	EPU Project Outage Preparations			✓
EPPI 100	Project Instructions-Preparation, Revision, and Cancellation Process		✓	
EPPI 110	EPU Project Expectations and Conduct of Business		✓	
EPPI 130	EPU Project Contractor Staffing		✓	
EPPI 140	Roles and Responsibilities		✓	
EPPI 160	EPU Formal Correspondence		✓	
EPPI 300	EPU Project Change Control		✓	
EPPI 320	Cost Estimating		✓	
EPPI 340	EPU Project Risk Management Program		✓	
EPPI 380	EPU Project Self Assessment		✓	
EPPI 610	EPU License Amendment Writers Guide		✓	
EPPI 810	St. Lucie EPU Severe Weather Preparations		✓	

**EXHIBIT 11**

*Source: Document Request Response EPU DR-1.6c*

### 3.2.2 Project Risk

In September 2009, the EPU Risk Matrix was renamed the EPU Risk Register. Significant EPU project risks are identified and added to the project Risk Registers, and reported monthly with other monthly monitored project activities and events. The Risk Registers provide a summary view of major project risks which are assigned potential costs and levels of probability. By estimating the weighted costs and the probability of the risk FPL arrives at the weighted value of each risk. Mitigation activities and strategies are also developed to resolve the risk. As these project risks are mitigated, the overall weighted costs are to be reviewed and updated. Once the risk is satisfactorily dealt with it is removed from the Risk Registers.

Project risks are also updated and vetted in Vendor Integration meetings that include vendors, FPL executive management, and EPU project management representatives. In addition to these quarterly meetings, FPL also conducts weekly Executive Vice President and Chief

Nuclear Officer meetings to update FPL executive management of project risks and mitigation strategies to be employed.

Several FPL actions taken in 2009 were aimed at reducing risks associated with the EPU project. The LAR licensing submittals, mid-course review, outage optimization, and High Bridge bottom-up estimate for Turkey Point Unit 3, were FPL efforts to further modify project scope, align the outage schedule with resources, and develop a refined project scope and budget. These activities caused FPL to review and reassess previously completed project work, determine where possible work efficiencies were available, and examine more closely the scope of each planned outage for risk.

As a result of these efforts, FPL identified both efficiencies of reduced work scope and necessary additional scope modifications, which will modify schedule and increase project costs. FPL believes that as the company continues to move closer to EPU construction, additional risks may be identified. An example of these is the three significant risks identified by FPL Project Management in March 2010, for the Turkey Point project. These three risks represent approximately [REDACTED] in additional costs to the Turkey Point EPU project. The potential of unidentified risks, and future project scope modifications, could lead to future increases in the FPL range of estimated costs for implementing the Uprate projects.

#### **Changes To Management Oversight**

The EPU Project Governance and Oversight Protocol, Revision 1, documents FPL's replacement of the EPU Project Steering Committee with the Vendor Integration Committee mentioned above. The Vendor Integration Meeting is used by FPL to review vendor status related to the project and resolve roadblock issues.

While the EPU Project Steering Committee met every four to six weeks, the Vendor Integration Meeting is held quarterly. Although this would seem to lengthen the time frame between executive views of key events, the FPL daily, weekly, and monthly meetings and monthly project management reports provide executive management with interim views of important events and key project risks.

FPSC audit staff believes the replacement of the EPU Project Steering Committee with the Vendor Integration Committee reduces redundant meetings and allows adequate regularly scheduled daily, weekly, and monthly reporting to FPL's Project Management and executive level management.

With the EPU organizational changes in July of 2009, FPL established a dedicated controls organization reporting to the Controls Director at Juno Beach. The Controls Group was organized by FPL in this manner to standardize project governance and oversight over project controls, and to provide independence from the site implementing organizations. A staff of four reporting to the Controls Director in Juno Beach is responsible for cost analysis, scheduling, support services, and key performance indicator measurement and reporting for the EPU project.

Day-to-day implementation of EPU project controls activities occurs at the individual sites. Each site has an Uprate Cost Engineer who reports directly to the Controls Director, and

indirectly to the site level Project Manager and the Project Director. The Uprate Cost Engineer tracks costs associated with the uprate and provides input from the site level to monthly project reports, including the Monthly Operating Performance Report.

The Controls Group is generally involved with contractor Recovery Plans on the front-end of the process by identifying potential delays or cost overruns. When estimated milestones or key cost indicators are not on target, the Controls Group becomes aware of a potential problem. EPU Site Directors are responsible for oversight regarding the timely completion of Recovery Plan actions. This group attends trending meetings, reviews estimates from scope change recommendations, assists the Project Manager and Integrated Supply Chain when necessary to verify contract deliverables, and monitors invoice discrepancies

### **3.2.3 Audits and Investigations**

FPL conducts an annual audit of the EPU project charges and transactions recorded throughout the year. This audit reviews sample financial transactions related to expense reports, invoices, and payroll made to the project. FPL has also used Concentric to perform external audits and investigations.

#### **Internal Audits**

FPL's Internal Audit group completed the annual audit of EPU project transactions through year-end 2008, and presented the audit results in May 2009. In 2009, FPL Internal Audit completed an audit of EPU transactions through July, and contracted with Jefferson Wells to complete the remainder of the audit. FPL's contract with Jefferson Wells is a three-year agreement to complete the annual audits for the EPU project.

Jefferson Wells is being used because FPL Internal Audit would not normally audit EPU every year. FPL Internal Audit explained that, in the past, findings were few, and risks were low. FPL internal audit staff is generally used to audit high and medium risk conditions, and are generally limited by staff resources. Therefore, FPL decided to outsource the annual audits to more efficiently use limited internal audit staff resources. Jefferson Wells will also be completing the audits for 2010.

The 2009 EPU Project audit report indicated very few erroneous transactions, and those were not considered by the Jefferson Wells audit team to be of significant impact. The audit report noted that all error corrections were appropriately completed by the company during the audit. No significant issues were identified by the Jefferson Wells during the audit, or by FPSC audit staff during its review of the report.

#### **External Audits**

Annual reviews of the EPU project controls are completed by Concentric Energy Advisors, Inc. These reviews provide Concentric's conclusions on the adequacy of EPU project controls and provide recommendations for improvements. Concentric's review of EPU controls for 2009 was completed in January 2010. Concentric noted that the 2010 work is additive to the work completed in 2009 and 2008. Concentric's 2009 observations regarding the EPU project internal controls were provided in FPL's May 3, 2010 testimony and include the following topics:

- ◆ Ensure that EPU fills key positions in a timely manner.
- ◆ Consider develop a workforce contingency plan for labor shortages that may impact the EPU project.
- ◆ Create key decision memoranda to document for decisions with a magnitude of 1% or greater.
- ◆ Provide additional detail on the monthly budget variance reports.
- ◆ Develop a clear process to ensure EPU Project vendors bill the appropriate regulated and un-regulated plants.

Concentric's 2010 recommendations for improved EPU controls include:

- ◆ The initial cost estimate used for EPU budgeting has likely gone stale and FPL should revisit its cost estimate.
- ◆ Further effort to clearly communicate between project team members is necessary.
- ◆ The EPU team should include additional staffing information in reports to senior management.
- ◆ Further enhancement to procurement procedures should be made in 2010.
- ◆ Lack of experience in QA/QC should be improved by adding an individual with design engineering experience.
- ◆ Additional management oversight of the turbine rotor manufacturing may be warranted in the future.

#### ██████ Letter Investigation

On March 15, 2010 Concentric Energy Advisors (Concentric) was retained by FPL's Law Department to conduct an independent investigation of an FPL employee complaint letter. The letter was dated February 19, 2010 and sent to Mr. Lewis Hay, FPL Group Chairman and Chief Executive Officer. The complaint expressed concerns regarding the following:

- ◆ EPU Project teams could not support updated indicators due to continuing baseline reviews and scope additions not previously identified.
- ◆ EPU Senior Management changed the philosophy of what was to be included in project estimates, resulting in no project baseline to measure against performance.
- ◆ Project Managers and engineers were alleged to have not corrected project issues, and EPU Senior Management would not accept the poor performance messages being sent by Project Controls.
- ◆ EPU Senior Management was slow to respond to changes in cost forecasts and concerns about the reliability of scoping studies.
- ◆ How the company would report budget information to the FPSC in hearings.

Concentric's investigation established a chronology of events that examined FPL EPU senior management actions since the EPU projects began in 2007 and followed events through October 2009. Concentric's account of the timeline is as follows:

- ◆ The original FPL and Shaw scoping studies provided the basis for FPL's decision to proceed with the EPU Projects in 2007.

- ◆ The EPU senior project management was alerted to the potential for the forecast to increase as early as April 2008 through [condition report] CR-2008-11443.
- ◆ The EPU senior project management reviewed a preliminary, revised forecast for PSL as early as December 2008 and a more refined version of this analysis in February 2009.
- ◆ The EPU senior management prepared the July 25, 2009 ESC presentations with the intent of providing a detailed, line-by-line review of the changes to the forecast.
- ◆ As of July 25, 2009, FPL believed the EPU Projects continued to be economic based on the revised forecast and projected incremental output.
- ◆ The VP of Power Uprate was aware of and had assisted in the presentation of a revised cost estimate to FPL's executive managers on July 25, 2009.

Concentric conducted a number of employee interviews and reviewed numerous EPU documents to test the complaint concerns expressed. The investigation confirmed many of the concerns. On June 21, 2010 Concentric provided a final report with its conclusions. Concentric concluded the following:

- ◆ FPL's decision to continue pursuing the EPU Project in 2009 was prudent and was expected to be beneficial to FPL's customers; FPL properly considered an updated cost estimate in its updated feasibility analysis in July 2009, which reinforced the conclusion that significant benefits were expected from the Project.
- ◆ All of FPL's expenditures on the EPU Project have been prudently incurred.
- ◆ Certain information provided by FPL in the 2009 NCRC was out-of-date and did not represent the best information available at the time; FPL is currently taking steps that Concentric believes will address this concern for the future.
- ◆ EPU Project management did not consistently follow certain procedures that were intended to govern this project in 2009; in addition, the Project's senior management in the first half of 2009 was slow to respond to concerns that were raised regarding project cost estimates; these issues are currently being addressed by the senior management team installed in the second half of 2009.
- ◆ FPL should consider taking certain actions that are discussed in the body of this report to strengthen the Project Controls organization and to better ensure compliance with existing procedures.

The Concentric investigation also examined the 2009 Nuclear Cost Recovery Clause proceedings to evaluate whether information provided to the FPSC during the proceedings was "accurate and consistent with the standards expected for testimony before, and submissions made to, a regulatory agency". Concentric identified that budget estimate information provided by the Vice President Uprates in his May 2009 testimony had changed and the change was not discussed in the hearing. Concentric stated in its report that:

While Concentric agrees that the new analyses confirmed the conclusions in Mr. ██████████ testimony, we believe that a \$300 million, or 27%, increase in the projected cost of the EPU Project should have been discussed in the live testimony on September 8, 2009.

In an interview with Concentric, FPSC audit staff determined that FPL witnesses are prepared by their attorneys for potential questions that might be asked during the hearing, as most witnesses are. During the interview, Concentric agreed that Mr. [REDACTED] had participated in a line-by-line budget discussion with FPL's Executive Steering Committee in July 2009, and therefore, understood that the budget information provided in May 2009 was indeed incorrect by the time of the hearing on September 8, 2009. Yet, when asked by FPL attorney Anderson, "If I asked you the same questions contained in your prefiled direct testimony, would your answers be the same?" Mr. [REDACTED] answered "Yes, they would be".

FPSC audit staff and Concentric agree that Mr. [REDACTED] knew the budget estimate was being reviewed and likely would change. In fact, Concentric states in the [REDACTED] investigation report:

On September 9, 2009, the ESC was presented with a newly revised forecast that further increased the cost [of] the EPU Projects by approximately \$104 million total for both sites. This presentation stated that approximately 30% of the total project costs have "high certainty".

Upon completing its investigation, Concentric provided FPL with four recommendations intended to "improve the distribution of information within FPL, the NCRC docket team and to the FL PSC". These recommendations are:

- ◆ Concentric recommends that the process be changed in order to provide timely and ongoing information within the NCRC docket team throughout each NCRC review cycle. This will help to ensure that any updated information is fully discussed within the NCRC docket team and prevent future concerns related to flow of information to the FL PSC. Concentric has been informed that this change has already been implemented.
- ◆ Similar to the recommendation above, FPL and the FL PSC staff should revisit the issue of intra/inter-cycle document production. The ongoing production of a limited number of key project documents could enhance the FL PSC staff's understanding of the projects and how they are developing on an on-going basis.
- ◆ The NCRC docket team has included and continues to include a number of first time witnesses or witnesses with limited experience serving in this role. As a result, it is vitally important that FPL's Law and Regulatory Affairs Departments continue to provide explicit instruction and guidance to these individuals. It is our understanding that the importance of updating one's pre-filed testimony and exhibits is an explicit part of the witness training program, which we believe should be conveyed through written instructions.
- ◆ As part of our investigation Concentric reviewed the list of invitees to the ESC presentations. Noticeably absent from these lists of invitees in 2009 was a representative from FPL's Regulatory Affairs and Law Departments. Given the importance and scale of the EPU Projects, and the alternative cost recovery treatment being afforded to these projects, a relatively senior member of Regulatory Affairs Department should attend each future ESC presentation. It is our understanding that this change has recently been implemented.

Concentric noted in its report that some of these recommendations have been addressed by changes made to the EPU Projects since July 2009. However, the recommendations are addressing issues raised in the report and Concentric wants to be sure all the recommendations are adequately addressed.

A draft report of the [REDACTED] Investigation was issued to FPL on April 28, 2009. After several meetings and calls to discuss and refine the draft report, FPL management response letters were issued by the Vice President Uprates and the Vice President Nuclear-Transition, previously the President, Nuclear Division during 2009. A final report including those responses was submitted by Concentric on June 21, 2010. FPL has disagreed with some of the Concentric recommendations provided in the report and the company asserts that recent procedural changes have resolved some issues.

### **3.2.4 Quality Assurance**

FPL's Quality Assurance group provides oversight of all safety-related work and major projects valued greater than \$100,000 including the St. Lucie and Turkey Point EPU projects. The FPL Quality Assurance Group has a dedicated staff person assigned to each plant. This staff conducts on-site quality surveillance reviews, work inspections, daily quality summaries and nuclear oversight reports of safety-related work activities.

Two other staff members are responsible for completing off-site vendor Quality Assurance oversight work, including quality reviews of vendor specifications, manufacturing, and delivery of safety-related equipment for the EPU project. FPL Quality Assurance supports the EPU project by conducting off-site reviews of safety-related equipment, vendor manufacturing processes, vendor quality control, and vendor manufacturing of equipment to required specifications.

During 2009, Bechtel became responsible for safety and non-safety Quality Control related work associated with contractor/subcontractor work activities while on-site. The Project Implementation Plan (PIP) documents the FPL/Bechtel Division of Responsibilities for Quality Assurance on the EPU projects.

Section nine of the Project Integration Plan documents the Quality Assurance Program Design and implementation work on safety-related Structures, Systems, and Components (SSCs) for the EPU Project. This is to be performed in accordance with the Bechtel Quality Assurance Program that complies with the requirements of Title 10 of the Code of Federal Regulations, Part 50, Appendix B. Bechtel's program is subject to approval by FPL's Quality Assurance Group.

Activities that affect safety-related SSCs are beyond the scope of the Bechtel Quality Assurance Program and must be performed in accordance with the FPL Quality Assurance Program. Bechtel must provide written notification and obtain acceptance from the FPL Project Manager and Quality Assurance Manager if Bechtel intends to conduct any 10CFR50, Appendix B related work. The Quality Assurance Manager is the focal point for Bechtel QA.

## **3.3 EPU Contract Oversight and Management**

FPL oversight and management of EPU contracts is shared between the EPU Contracts Group, Project Controls, Technical Representatives at the sites, and the Integrated Supply Chain. With the changes made to the EPU organization in August 2009, more responsibility is given to the sites for day-to-day contract administration and scope change control.

A Bechtel central Procurement Group is structured to support procurement for the EPU Projects at Turkey Point and St. Lucie. Bechtel has a Site Procurement organization at each site for day-to-day procurement activities. Major and long-lead item procurement, contract management, and administrative support is provided by the FPL Integrated Supply Chain organization, EPU Contracts Group, and Project Controls as required.

### **3.3.1 Changes To Existing Contracts**

During 2009, the EPU Contracts Group continued to make revisions for many reasons including scope changes, modification of technical specifications or delivery dates, changes to terms and conditions, and additional funding. These changes were outgrowths of increased detailed LAR engineering, the mid-course review, and the outage optimization review.

These efforts also necessitated that FPL renegotiate certain contracts with vendors due to scope reductions, modifications, and additions identified. FPL made changes to the equipment procurement contracts to better align the delivery dates and payment milestones with the installation dates per the outage optimization plan.

As noted previously, during the period May 2009 through February 2010, FPL made 250 to 300 contract revisions to 80 existing contracts scope, terms and deliverables. Excluding corporate blanket accounts, the net difference to all EPU contracts renegotiated, from May 2009 through February 2010, was a reduction of approximately [REDACTED].

Nuclear Filing Requirements Schedule T-7 filed in this docket, shows there were a total of 32 existing contracts greater than \$250,000 (opened prior to 2009) with 2009 EPU expenditures. These contract expenditures totaled \$195.5 million, representing approximately 20.8 percent of the total \$942.1 million in estimated final contract dollars.

### **3.3.2 New Contracts**

During 2009, FPL implemented 20 new EPU services and materials contracts greater than \$250,000. The total estimated final amount of new contracts was \$38.9 million. Eleven of the 15 (75 percent) greater than \$250,000 were competitively bid, three (15 percent) were single sourced, and two (10 percent) were Original Equipment Manufacturer (OEM). FPSC audit staff reviewed the three justifications prepared for single source contracts and found them sufficient for a third-party to understand FPL's reasoning for single sourcing rather than competitively bidding the work.

Of the 20 new contracts approved during 2009, 12 were greater than \$1 million. Eleven of the 12 contracts greater than \$1 million were bid competitively. The single source contract

was for Procedure Writing and totaled [REDACTED]. These contracts greater than \$1 million represent \$34.6 million (89 percent) of the \$38.9 million new contract dollars for 2009.

**EXHIBIT 12** lists the new contracts over \$1 million for 2009. The contract number, work scope, contract amount, and contract type are shown.

<b>Extended Power Uprate Contracts Greater Than \$1 Million - 2009</b>			
No.	Description	Amount	Type
1	Normal Containment Coolers & Testing Services (PTN)	[REDACTED]	Competitive
2	EPU Warehouse (PTN)	[REDACTED]	Competitive
3	ISO Phase Duct Coolers and Testing Services (St. Lucie)	[REDACTED]	Competitive
4	ISO Phase Duct Coolers, Installation, & Testing (PTN)	[REDACTED]	Competitive
5	Replacement Main Feedwater Pumps and Testing (St. Lucie)	[REDACTED]	Competitive
6	Main Feedwater Isolation Valves and Testing Services (PTN)	[REDACTED]	Competitive
7	Replacement Heater Drain Pumps (St. Lucie)	[REDACTED]	Competitive
8	Step-Up Transformer (PTN)	[REDACTED]	Competitive
43	Inductors (PTN)	[REDACTED]	Competitive
44	Replacement Transformer Coolers (St. Lucie)	[REDACTED]	Competitive
45	Cooling Water Heat Exchangers (PTN)	[REDACTED]	Competitive
47	Procedure Writers (PTN)	[REDACTED]	Single Source
<b>TOTAL</b>		<b>\$34,649,404</b>	

**EXHIBIT 12**

*Source: Schedule T-7*

### **3.3.3 Changes To Contract Management**

FPL's NAP-420 procedure has provided guidelines for basic nuclear contract development, administration, and oversight. This procedure has been useful to EPU procurement and contract administration since the project's inception. In October 2009, FPL converted this procedure to the standard fleet platform and cancelled NAP-420. This change standardized the procedure for fleet application under AD-AA-100-1002 and designated NAP-420 as guideline PR-AA-1000 for fleet use.

Contract oversight is the shared responsibility of the EPU Project Site Manager and Technical Representatives/Contract Coordinators who administer site services. These functions coordinate performance reviews for contractors working on the site. Upon completion of the authorized work, the Site Technical Representative/Contract Coordinator is responsible for verifying that the contractor has met all obligations and will determine whether any outstanding contract deliverables exist. Technical Representatives/Contract Coordinators are responsible for determining whether billed work is completed satisfactorily and determining the level of

approval necessary for payment. The site Technical Representatives/Contract Coordinators are responsible for closing out the contract once all site work has been completed. Bechtel interfaces with both Juno EPU Management and EPU site management to provide contract oversight during the project.

As the Uprate EPC contractor, Bechtel coordinates the work of contractors toward the completion of the construction and testing portion of the EPU projects. Bechtel provides procedures, performance indicators, and monitoring, for on site contractors. These procedures and performance indicators were implemented during 2009.

### 3.3.4 EPC Contract Oversight

FPL and Bechtel are joint managers of the Engineering, Procurement, and Construction (EPC) contract for the duration of the St. Lucie and Turkey Point Uprate Projects. The FPL and Bechtel Project Director/Managers resolve any matters relating to the EPC Contracts, or their interpretations of the contract. Contract administration is performed in accordance with the requirements of the Contract terms. The Contract Change Control Process for documenting contract scope, schedule, and cost changes, is documented within Appendix A of each EPC contract.

The combined value of the Bechtel EPC contracts for the St. Lucie and Turkey Point uprates is approximately \$421 million. The total of these two contracts represents [REDACTED] of the total [REDACTED] EPU Project contracts value. The combined 2008 and 2009 expenditures for the individual contracts are approximately [REDACTED] of the [REDACTED] Turkey Point Contract, and [REDACTED] of the [REDACTED] St. Lucie Contract. From Schedule T-7, the combined contract expenditures in 2009 totaled [REDACTED].

During 2009, the FPL Contracts Group made two modifications/revisions to the Bechtel Turkey Point blanket purchase order. Release 2/Revision 1 increased Bechtel funding by [REDACTED] in May 2009. This funding allocated previously authorized blanket order funds supporting the ongoing project management and engineering activities for Turkey Point Units 3&4. Release 2/Revision 2 increased Bechtel funding by [REDACTED] dollars in July 2009 for the same reason. While these two purchase orders were completed during 2009, the total blanket amount of the contracts remains the same.

As discussed earlier, EPC Contract provisions call for a Project Implementation Plan (PIP) to provide direction and guidance for completion of the EPU projects. According to FPL the original PIP issued January 12, 2009 was subsequently revised on May 15, 2009 and again on October 10, 2009. The PIP includes information related to the project including:

- ◆ Scope of work to be completed,
- ◆ Bechtel/FPL project team organizations and responsibilities,
- ◆ Administrative information,
- ◆ Contract administration and changes,
- ◆ Information Systems and Technology,
- ◆ Project Controls Organization and Reporting,
- ◆ Quality Assurance Program,

- ◆ Records Management,
- ◆ Project Process Controls,
- ◆ Radiation Protection,
- ◆ Condition Reporting,
- ◆ Safety and Security,
- ◆ Project Construction,
- ◆ Start-Up Implementation, and
- ◆ NDE Organization and Procedures.

Project scope changes requested by Bechtel are submitted to the FPL Site Project Manager, reviewed and vetted by site managers and the Site Director. Approved changes are submitted through a Potential Scope Change/ Delay Notice (PSCD) document to the Controls Group. The Controls Group reviews the PSCD and submits it to EPU Project Management and FPL executive management, for review and approval at appropriate levels. Once the PSCD is approved, the change is entered into the schedule and the EPU Contracts Group issues a PO to perform the added scope of approved work.

Bechtel completes Monthly Reports outlining project status, scope changes, schedule risks, cost increases, key performance indicators, and roadblocks to progress. These monthly reports are reviewed by the EPU project management team and FPL executive management. The EPU Controls Group completes monthly project reports that present a comprehensive look at the project schedule, budget costs, contractor key reporting indicators, and potential project risks for FPL's EPU management team and executive management.

FPL states that the EPU Site Project Manager, and the Bechtel EPC team protect the project from substandard contractor work by monitoring contractor performance, scheduling delays, and cost performance. FPL's EPU Site Project Manager is to coordinate all contractor work completed on the Uprate project with Bechtel's EPC team. Together with the EPC team, the Site Project Manager is responsible for reporting potential project risks, delays, or work stoppage issues, upward to the EPU Site Director. If project scheduling or budgeting are seriously jeopardized by contractor non-performance, the EPU Site Director may request the removal of non-performing contractors and secure other contractors to perform the scope of work. Based on the scope of work and potential seriousness of any future contractor non-performance, FPL senior management may become involved with the non-performing contractor's company, or may choose to replace the contractor.

## 4.0 Conclusions

### 4.1 Turkey Point 6&7

#### 4.1.1 Project Events and Developments

FPL remains committed to bringing two new AP1000 nuclear reactor generating plants into service. However, since FPSC audit staff's previous report, FPL has made significant changes to the estimated in-service dates for Turkey Point 6&7. The original dates were 2018 and 2020, respectively. FPL now estimates the units will come on line in 2022 and 2023.

FPL has also significantly changed cost projections, estimating increases of up to \$989.6 million. The company now estimates the total, in-service cost for Turkey Point 6&7 to be in a wide range from \$12.9 billion to \$18.7 billion.

The company is in the licensing phase and expects licensing efforts to continue as its primary focus through 2011. FPL has chosen to separate the licensing and preparation phases of the project. FPL believes current economic and regulatory uncertainties make expenditures beyond those associated with completion of licensing to be unwise and premature at this time. FPL believes this approach provides the greatest ability to control costs, mitigate risk, and ensure the eventual, safe, and successful implementation of Turkey Point 6&7.

The company did not apply during the Department of Energy's first wave of solicitations for federal loan guarantees. FPL believed the program was insufficiently funded with undefined costs, benefits, and responsibilities. FPL is monitoring the program and will consider applying if future offerings are made by the Department of Energy.

The Combined Operating License Application (COLA) was submitted to the Nuclear Regulatory Commission in June 2009, three months later than originally planned. FPL chose to delay in order to better prepare the application. To date, FPL has received only four Requests for Additional Information from the NRC, and has timely responded to each.

FPL has not signed a comprehensive project construction contract and does not expect to revisit negotiations for one until at least December 2011. Since January 2009, the largest current project contract, for licensing and post-application support increased \$21.6 million. FPL has also extended a resolution of its long lead forging reservation agreement until March 2011. Eventual cancellation could cause FPL to lose a portion of its \$10.8 million reservation fee.

#### 4.1.2 Conclusions and Recommendations

FPSC audit staff concludes that, in the near term, FPL is primarily focused on obtaining necessary licenses and permits at local, state, and federal levels and answering requests for additional information from various agencies. The company has revised cost and schedule estimates, in response to market and regulatory conditions. As a significant result, long lead forgings and the signing of a major construction contract have been deferred. Though far from

inactive, the preponderance of Turkey Point 6 & 7 project execution still remains over the horizon.

FPSC audit staff has no recommendations at this time for the Turkey Point 6&7 project. FPSC audit staff will continue to closely monitor project progress, costs, and controls.

## **4.2 Extended Power Uprate**

### **4.2.1 Project Events and Developments**

On May 3, 2010 FPL announced a new EPU project non-binding cost estimate range between \$2.05 billion and \$2.30 billion for the St. Lucie 1&2 and Turkey Point 3&4 uprate projects. The estimate is between \$255.5 million (14 percent) and \$500.5 million (28 percent) greater than the need determination estimate. The increase is based on key events encountered during 2009, expected increases in LAR engineering costs, expected increases in Engineering, Procurement, and Construction (EPC) vendor costs, weighted estimates of project risks, and future unidentified project costs to complete the uprates during 2011 and 2012.

During 2009, FPL's senior management made the decision to replace the EPU Management team. Senior management appears to have believed the management team could not provide the necessary control of EPC contractor estimates and that more aggressive actions were required. FPSC audit staff's opinion is that this change was made in part due to performance issues. Though FPL disagrees, an investigative report by Concentric Energy Advisors, Inc. (Concentric) appears to confirm FPSC audit staff's opinion.

As part of FPL's efforts to identify potential efficiencies and improvements in project work scope and schedule, a mid-course review was completed, resulting in significant scope revision and increased project scope changes. An outage optimization review conducted in mid-2009 aligned outage and licensing schedules, eliminating overlapping activities, and rescheduling much of the uprate work to longer outages later in the project.

Significant EPU scope, schedule, and budget changes required contract renegotiations to reflect new project scope, reducing contract costs by [REDACTED]. FPL made additional revision to its scheduled submission of St. Lucie Unit 2 License Amendment Request from first quarter 2010 to year end 2010 due to plant technical issues, and could incur [REDACTED] in additional costs to submit and support the License Amendment Requests.

FPL also initiated a third party assessment and budget estimate by High Bridge Associates, Inc. (High Bridge), costing [REDACTED] for Turkey Point Unit 3 to validate necessary work scope, detailed modification estimates, implementation strategies, and provide a close range of costs.

### **4.2.2 Conclusions and Recommendations**

Based on the events and developments described above, FPSC audit staff concludes that EPU management was replaced in part due to performance issues. Therefore, FPSC audit staff recommends the Commission closely examine associated project costs in a future proceeding.