BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

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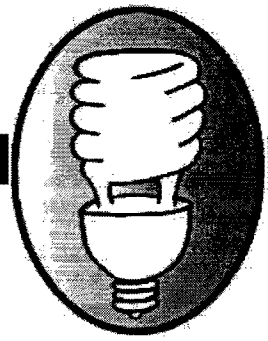

REVIEW OF

# Progress Energy Florida's

# Project Management Internal Controls

FOR

# Nuclear Plant Uprate and Construction Projects

By Authority of
The State of Florida
Public Service Commission
Division of Regulatory Compliance
Bureau of Performance Analysis

Confidential Draft
July 22, 2009

*Review of*

# Progress Energy Florida's Project Management Internal Controls for Nuclear Plant Uprate and Construction Projects


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**July 2009**


**By Authority of**
**The State of Florida**
**Public Service Commission**
**Division of Regulatory Compliance**
**Bureau of Performance Analysis**

**PA-09-01-005**

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# 1.0 Executive Summary

## 1.1 Purpose and Objectives

At the request of the Florida Public Service Commission's (Commission or FPSC) Division of Economic Regulation, the Division of Regulatory Compliance conducted this review of the internal controls and management oversight of the nuclear projects underway at Progress Energy Florida (PEF or the company). This is the second review of the company's controls for its nuclear construction projects. The first report, *Progress Energy Florida's Project Management Internal Controls for Nuclear Plant Uprate and Construction Projects,* was published in August 2008. Audit staff examined the organizations, processes, and controls used by the company to execute the Extended Power Uprate of Unit 3 at the Crystal River Energy Complex and the construction of Levy Nuclear Plant Unit 1 and Unit 2.

The primary objective of this review was to document project key developments, and the organization, management, internal controls, and oversight that PEF has in place or plans to employ for these projects. The information provided in this report may be used by Division of Economic Regulation staff to assist in an assessment of the reasonableness of the company's cost-recovery requests for the projects.

## 1.2 Scope

The internal controls examined were those 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 accomplish the following:

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 or

control 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, and ongoing auditing and quality assurance are essential to ensure that project costs are incurred prudently.

Specifically, according to 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 the internal controls over operations is effective. This report will document the existence of each of these five components for project management.

## 1.3 Methodology

Planning and research for this review were performed in January and February 2009. Data collection, site visits and interviews, analysis and report writing were conducted between January and June 2009. The information compiled in this report was gathered via company responses to staff document requests, visits to the Crystal River Energy Complex and the Levy site, and interviews with key project personnel. Staff also reviewed testimony, discovery and other filings in Docket No. 090009-EI.

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

Policies and procedures
Organizational charts
Contract request for proposals
Contractor bids
Bid evaluation analyses
Contracts
Project scope analysis studies by PEF and consultants
Internal audit reports

## 1.4 Observations

**General**

Internal controls will ultimately determine the success of these projects, and the prudence of the company's actions. Many of PEF's internal control systems are still in development and, will continue to evolve as the projects progress. Therefore, staff has examined only the completed portions of the project and internal control structure that are presently in place. Further, any assessment made at this point in time cannot be expected to remain valid for the entire duration of the project activities.

Simply having internal controls in place that appear adequate at the outset cannot ensure that they will be used properly. Verification of adherence to procedures and careful examination of changes to control systems are essential ingredients to evaluating the reasonableness of management's actions. FPSC audit staff believes continued internal and external oversight is necessary over the lifespan of these projects. Of particular importance are internal audits and quality assurance audits which should provide broad coverage of controls, procedural adherence, and project management issues.

FPSC audit staff recognizes that its requests for information required the company to produce a significant volume of documents. Overall, the company created a streamlined process that improved the efficiency of data collection from the prior year. However, audit staff does have concerns about the completeness of the company's responses to some of its requests for information through data requests and company personnel interviews. This is a continuation of existing concerns identified during the 2008 review. Audit staff believes that PEF should work to eliminate these issues in future requests by Commission staff.

**Levy Nuclear Plant**

PEF submitted its Combined Operating License Application (COLA) in July 2008. The company requested a 42-month review schedule from the Nuclear Regulatory Commission (NRC). PEF included a request to perform its dewatering efforts and diaphragm wall prior to the issuance of its Combined Operating License. The NRC notified PEF in January 2009 that it will not issue a Limited Work Authorization to complete this work in advance of the Combined Operating License. PEF states that this will impact its original construction schedule by at least 20 months.

On December 31, 2008, PEF signed an Engineering, Procurement, and Construction contract with Westinghouse and Shaw, Stone and Webster to design and build two AP1000 units at its Levy site. The company states there were several reasons for signing this contract in December 2008, including [redacted] However, subsequent to PEF signing the Engineering, Procurement, and Construction contract, the NRC decided not to approve the company's Limited Work Authorization on PEF's requested timeline. The parties are currently renegotiating the provisions of the contract. Although the company states the

project costs are still within its original forecast, the impact of this event may have a financial impact on the project.

Prior to signing the Engineering, Procurement, and Construction contract with Westinghouse and Shaw, Stone and Webster, PEF initiated two external reviews of the contract provisions. PricewaterhouseCoopers performed a review of the contracts terms and Conditions, while Burns and Roe performed an assessment of the schedule and costs. Each review identified specific findings related to the contract. PEF is working to resolve these outstanding issues. FPSC audit staff believes that the company should continue to closely monitor the status of the findings and observations to ensure the project is designed on time and in keeping with the contract.

PEF contracted with the Joint Venture Team (Sargent & Lundy, Worley Parsons and CH2MHILL) for development and submission of the COLA, submission of the Site Certification Application, and continued support in response to NRC requests for additional information. Since PEF had not selected its Florida site, it requested bids for its Florida greenfield site using the characteristics of the company's existing Shearon Harris Plant in North Carolina. PEF stated it did anticipate additional costs due to the geographical differences of the locations. The Joint Venture Team (JVT) contract for the Levy site has expanded 220 percent over the original contract amount to-date. FPSC audit staff notes the difficulty in estimating costs associated with filing a COLA under the new process used for this wave of plants. According to PEF the increase in the cost of the Joint Venture Team contract has not resulted from errors or inefficiency, but rather in the growth of the scope of work required over time.

**Crystal River 3 Extended Power Uprate Project**

PEF is self-managing its Crystal River 3 Extended Power Uprate (Uprate) project. A significant portion of the project will occur during a scheduled refueling outage in [redacted] During this outage, the company is scheduled to replace 18 major components. This work should increase the unit's output by 28 MWe. The company states it is within its original budget forecasts for this project.

The company is in its final planning stages for the fall 2009 work, and is transitioning to implementation and oversight of the project. The project team is working to finalize the schedule for each component to ensure that all the work can be performed timely and without interference to other planned projects. The company anticipates issuing its final project schedule in July 2009. PEF states the project is within its original budget forecast, and all components are on schedule and will arrive at the Crystal River Energy Complex site prior to the scheduled outage.

The company has made changes to the management organization during 2009. Management of the Uprate project is now within the Nuclear Projects Organization. Previously, the Levy project and the Uprate project were under the same organization. The company states that the new organization will provide a better management structure as the projects move from planning to construction.

PEF continued to secure contracts throughout 2008 and into 2009 to finalize plans for Uprate work during the planned fall 2009 outage. While there were no new sole source contracts awarded during this time, PEF did expand the scope of two sole-sourced contracts. One contract is an existing fleet contract for labor and support, and one involves an original equipment manufacturer. Currently, PEF's sole sourced contracts for the Uprate project represent approximately 33 percent of the total costs. FPSC audit staff notes that while PEF policies and procedures detail what requirements are necessary to implement a sole source contract, the procedures do not indicate any specific documentation requirements other than that a written justification exist within the contract file. FPSC audit staff recommends PEF consider updating its policies to define the information to be included in single/sole source justification documentation.

# 2.0 Key Project Developments

## 2.1 Key Project Development-Levy Nuclear Plant

### What is the current status of the Levy project?

Since the last Nuclear Cost Recovery hearing, Progress Energy Florida moved forward in 2008 and 2009 towards construction of Levy Units 1 and 2. The company has achieved several milestones, and suffered some project setbacks. Currently, the company has forecasted a total project cost of $17.2 billion[1]. However, according to the company, the timeline for the project has been extended by a minimum of 20 months as a result of the federal regulatory approval process, and this delay may have a cost impact on the project.

At the onset of this review in January 2009, the company stated that the planned in-service date for Levy Unit 1 was July 2016 and Levy Unit 2 was July 2017. This timeline was based on the expectation that the company would receive the required Nuclear Regulatory Commission's (NRC) Final Environmental Impact Statement in June 2010, the Limited Work Authorization (LWA) by September 2010, and the Combined Operating License by January 2012. These dates have shifted as a result of the NRC's decision concerning the company's LWA request.

**Combined Operating Licenses Application Submittal**

During 2008, the company completed two major milestones for this project. In July 2008, the company submitted its Combined Operating License Application (COLA) to the Nuclear Regulatory Commission for review. This is the key step to gain NRC approval for the construction of a nuclear generating plant in the United States. The company had requested an approval timeline from the NRC of 42 months. In October of 2008 the NRC docketed the application and requested additional information from the company about the project. In January 2009, the company received word from the NRC on its application review schedule. The NRC did not accept the company's request to issue a LWA prior to the issuance of the Combined Operating License.

**Levy Engineering, Procurement, and Construction Contract Execution**

The second major milestone for PEF was the signing, on December 31, 2008, of the Engineering, Procurement, and Construction (EPC) contract for two AP1000 nuclear units. The EPC contract with Westinghouse Electric Company (Westinghouse) and Shaw, Stone & Webster established the necessary milestone construction dates and associated payment schedule, based on the 2016 and 2017 in-service dates for the Levy units. In the contract, the consortium of Westinghouse and Shaw, Stone & Webster is responsible for the design and construction of the two units.

[1] PEF response to FPSC staff Data Request 1-30. pg 09PMA-DR1-30-000015

## What analysis preceded the signing of the Engineering, Procurement, and Construction Contract for the Levy project?

In April 2008, the company acknowledged, through a Letter of Intent with Westinghouse, its intent to build two AP1000 nuclear units at the Levy project site. The agreement stated that PEF was to receive a [redacted] Prior to signing the Engineering, Procurement, and Construction contract with Westinghouse and Shaw, Stone & Webster, PEF commissioned two outside consults to evaluate the viability of the anticipated contract. One study, by PricewaterhouseCoopers, analyzed the terms and conditions of the contract, while the other review, by Burns and Roe, evaluated the pricing and schedule timeline being negotiated by the companies. PEF used the information from these studies to evaluate and negotiate the final Engineering, Procurement, and Construction contract with Westinghouse and Shaw, Stone & Webster prior to its execution.

**PricewaterhouseCoopers Review**

Due to the specialized subject matter of the Engineering, Procurement, and Construction contract, the company chose to employ an outside auditing firm to review the proposed terms and conditions. PEF has an ongoing relationship with PricewaterhouseCoopers (PwC) for independent auditing services and this review was conducted under that existing contract. The review was conducted during May and June 2008. PwC was initially provided a draft copy of the contract dated January 23, 2008 and subsequent updated drafts of relevant articles and exhibits as they became available.

[redacted]

[redacted] PEF states it modified Section 6.2 of the final contract to resolve these concerns.

[2] PricewaterhouseCoopers DRAFT Comments of EPC Contract. June 11, 2008. Pg 1of 21.

PEF's project management team, along with the company's Audit Services Department, developed a management response and action plan based on PwC's assessment. After resolving all of observations identified in the report, PEF management modified the terms of its draft Engineering, Procurement, and Construction contract. These changes were incorporated into the final version on December 31, 2008.

**Burns and Roe Review**

The consortium of first-wave utilities[5] agreed there was value for an independent third-party to review the AP1000 design and schedule package prior to its delivery. The consortium entered into a joint agreement with Burns and Roe to perform a two-part review of the AP1000. Due to each company negotiating its own Engineering, Procurement, and Construction contract and the proprietary information involved, the first part of the assessment would be a review of the AP1000, as if it were to be built on a "neutral" site. This information and related costs would be shared between the utilities to minimize the costs of the review. The second component of the review would be location-specific for each utility, and the results would be made available only to that company.

PEF entered into an agreement with Burns and Roe in March 2008, and the review work was completed in early November 2008. Burns and Roe identified 82 findings and 146 observations related AP1000 design and location-specific issues. PEF management reviewed the findings and states that its goal is to resolve or mitigate all of the identified Burns and Roe findings by the end of 2009. Currently, PEF has resolved 45 of these and the remaining 37 findings have been assigned a risk mitigation strategy and estimated completion date.

Once the company has addressed the findings, PEF management states the company will work to address and resolve all of the observations identified within the review. The observations identified are items that should be brought to PEF management attention, but do not require specific action. An observation may indicate a trend that could lead to potentially negative impacts. FPSC audit staff agrees that the company should closely review all the additional observations to ensure the project is designed on time and in keeping with the Engineering, Procurement, and Construction contract.

Although the AP1000 reactor design has been certified by the NRC through its review of the nuclear safety engineering components, Westinghouse has not completed the engineering

[3] Ibid., Pg 2 of 21.
[4] Ibid., pg 2 of 21.
[5] The First-Wave utilities consist of the first four utilities that agreed to purchase the AP1000 technology from Westinghouse—PEF, Duke Energy, Southern Company and SCANA Corporation.

designs for all of the plant components. [redacted]

[redacted]

[6] Burns and Roe, et al. "Burns and Roe Review and Validation of AP1000 Cost and Schedule," March 2009.
[7] Ibid.

[redacted] PEF stated in its management response to the review that it will continue to monitor the Risk Register on a quarterly basis to verify a current and appropriate plan is in place. FPSC audit staff agrees that PEF should continue to monitor the risk register; however, until Westinghouse and Shaw, Stone & Webster finalizes a risk management process that satisfies PEF's concerns, FPSC audit staff believes monitoring should be completed more frequently than on a quarterly basis.

[redacted]

The company states that the Burns and Roe report was valuable in assessing the overall feasibility of the draft Engineering, Procurement, and Construction contract. The company believes the report allowed it to better understand potential problems prior to contract execution. Company management states that Burns and Roe was asked whether PEF should continue with the project, given the identified findings. PEF states that Burns and Roe responded that the report did not identify any issues that would warrant the cancelation of the project.

## What are the key elements of the contract executed for the Engineering, Procurement, and Construction of the Levy Nuclear Project?

The signing of the Engineering, Procurement, and Construction contract required the selection of the nuclear plant technology. PEF states it completed an extensive evaluation of the available technology and selected the AP1000 design by Westinghouse and Shaw, Stone & Webster as its choice for the new Levy Units. Though selection of the AP1000 technology

[8] PEF's *Mitigation Strategy for the Risks Identified by Burns and Roe in Its March 2009 Report for Levy Nuclear Project*, Finding 8-1.
[9] Ibid, 8-6
[10] Ibid.

required that Westinghouse would perform the engineering and procurement functions of the project, PEF could have chosen a separate contractor to complete the construction of the plant. PEF decided to employ the consortium of Westinghouse and Shaw, Stone & Webster to handle all phases of delivery and construction of the facility. The company states that it was able to negotiate its best value for the project by using the consortium. The negotiated contract price for contractor's scope of work for the two units was $7.65 billion. Costs for site preparation, other site facilities, transmission, escalation, and carrying costs account for the remaining balance of the total project cost, currently estimated at $17.2 billion.

A key element of the Engineering, Procurement, and Construction contract is [redacted]

The Engineering, Procurement, and Construction contract [redacted]

[redacted]

As a result of the NRC's response to PEF's application for a LWA, the contract and identified terms are currently in re-negotiation and subject to revision. PEF management stated its goal is to amend the contract to reflect anticipated regulatory approval timelines while maintaining as many of the current terms and conditions as possible.

## What is the current schedule for the Levy Nuclear Project, and how has it been impacted by the NRC's decision on the Limited Work Authorization?

Two major regulatory requirements necessary to construct the new units at the Levy site are the Florida Power Plant Siting Act Site Certification Application (SCA) and the NRC

[11] Contract Number 414310 signed December 31, 2008: Engineering, Procurement, and Construction contract between Progress Energy and Westinghouse / Shaw, Stone & Webster for two AP1000s.

Combined Operating License. The company submitted its request for both of these regulatory approvals during 2008. The SCA was submitted June 2, 2008 and the COLA July 28, 2008.

In the company's original COLA, PEF classified certain work activities as excavation-related as opposed to construction-related activities. Specifically these included the following:

> Installation of permanent reinforced concrete diaphragm wall to facilitate dewatering and excavation of the nuclear islands.
>
> Pressure grouting[12] of rock below the nuclear island foundations roller compacted concrete bridging mats to facilitate dewatering of the excavation for the nuclear island.[13]

On September 5, 2008, the NRC requested that PEF revise its Limited Work Authorization to include the diaphragm wall and grouting work required for excavation. On September 12, 2008, PEF amended its LWA application to include these two critical work elements.

PEF states that at the time it submitted its COLA, the NRC was still evaluating the requirements for the type of work to be included in its LWA scope. Specifically, the NRC was refining its definition of excavation work and construction work. The company states that it filed its request based on its understanding of the regulatory requirements at the time. [redacted] PEF management states that the exclusion of this work in the original application did not have an impact on the NRC's final ruling on the LWA application.

The NRC docketed PEF's application on October 6, 2008 and issued a letter stating that the agency anticipated issuing its review schedule within 30 days. Along with docketing the application, this correspondence included additional Requests for Additional Information and responded to PEF that:

> Although our acceptance review determined that the [Levy project] COLA is complete and technically sufficient, the complex geotechnical characteristics of the Levy County site require additional information in order to develop a complete and integrated review schedule . . . Because of the scheduling uncertainty in the areas of geotechnical science and structural engineering, the NRC staff does not intend to commence a review of these areas until all associated RAIs are sufficiently answered. For all other sections of the [Levy project] COLA, the NRC staff intends to commence review based on the availability of resources . . . Because of the complexity of the site characteristics

[12] Pressure grouting is the underground injection of a concrete-like, slurry material into porous rock to prevent water intrusion.
[13] Progress Energy letter to the Nuclear Regulatory Commission. "Application for Combined License for Levy Nuclear Power Plant Units 1 and 2: NRC Project Number 756." July 28, 2008. pg. 5.
[14] Burns and Roe, et al. "Burns and Roe Review and Validation of AP1000 Cost and Schedule," March 2009.

> and the need for additional information, it is unlikely that the [Levy project] COLA review can be completed in accordance with this requested timeline.[15]

PEF management states that the NRC's response did not cause significant concern to the company. On November 20, 2008, PEF responded to the NRC requests for additional information. PEF management states that although the NRC asked for additional geotechnical information on the Levy site and delayed issuing the final schedule until all the RAIs were satisfied, the company fully anticipated receiving its LWA and Combined Operating License within a few months of its requested timeline.

The company does not believe the Combined Operating License approval process neither has been nor will be impacted by limited resources at the NRC. Prior to filing the Combined Operating License application in July 2008, PEF states that it had several meetings with NRC senior management to discuss the requested timeline. PEF management believed that because the company contacted the NRC early in the process, and met its filing timeline commitments, the NRC had allocated the necessary budgetary resources to evaluate the company's request. The company believes that any availability of resource concerns expressed by the NRC is in the actual time necessary to gather and analyze the required technical components of the application.

On January 23, 2009, PEF received notice via a teleconference with the NRC, that the geotechnical review was paramount to the issuance of the Combined Operating License. Therefore, the work listed under the LWA scope would be evaluated under the Combined Operating License timeline, meaning the LWA would not be approved prior to the issuance of the Combined Operating License. Company management states that this decision was completely unexpected, and that the NRC did not provide any feedback prior to this call that the LWA application was in question. FPSC audit staff's reviewed correspondence between the NRC and PEF concerning the LWA from July 2008 through April 2009. There was no indication from these documents that PEF was given prior notification that the LWA would not be issued by the NRC. PEF confirms that the company and the NRC had conversations about the COLA during this period; however, the company did not document the details of these conversations.

The company identified, within its Levy project risk matrix, a risk for the "Limited Work Authorization Approval."[16] Prior to the NRC's determination that the LWA could not be reviewed on the requested timeline; the company assessed the probability of receiving the LWA approval as "highly likely." Even with this belief, the company recognized that the impact of not receiving the approval was "significant," with the primary consequence impacting the project schedule and a secondary impact to the cost of the project. Additionally, the company noted in the September 2008 *Integrated Project Plan* provided to senior management that the risk associated with LWA approval was "very low," although its potential impact, or consequence, was categorized as "critical."

[15] Nuclear Regulatory Commission letter to Progress Energy. "Acceptance Review for the Levy County Nuclear Power Plant Units 1 and 2 Combined License Application. October 6, 2008.
[16] PEF Response to FPSC Data Request 1.31B, Bates 09PMA-DR1-31bg-000047.

FPSC audit staff recognizes that the risks associated with the regulatory approval process have always held a significant potential impact on this project. Once the company submits a request with a regulatory entity, the company—albeit temporarily—relinquishes its ability to control the forward progress of the project. After the company started tracking this risk in July 2008, company management stated that it remained focused on this risk by its inclusion within its management reports.

However upon request, the company could not provide any written documentation that management reevaluated or revised its assessment of the likelihood of LWA approval prior to the NRC's decision in January 2009.[17] Also as of May 2009, the company had not updated its September 2008 *Integrated Project Plan* to reflect the NRC's decision on the LWA request. PEF acknowledged that it anticipated a slip in the NRC approval timeline from its original request; however, management states it did not envision this decision by the NRC.

This LWA approval setback prevents the company from initiating the dewatering and foundation work prior to the issuance of the Combined Operating License, currently scheduled for December 2011. Therefore, the established schedule outlined in the EPC contract is not attainable. **EXHIBIT 1** details the 2008 timeline established in the original EPC contract. The timeline highlighted in red represents the LWA work that was not approved by the NRC under the company's original request. This work will not start until 2012, at the earliest.

**Levy Project Timeline**
**2008 Projected PEF Schedule**
**(Prior to the NRC's Decision Concerning the LWA Schedule)**

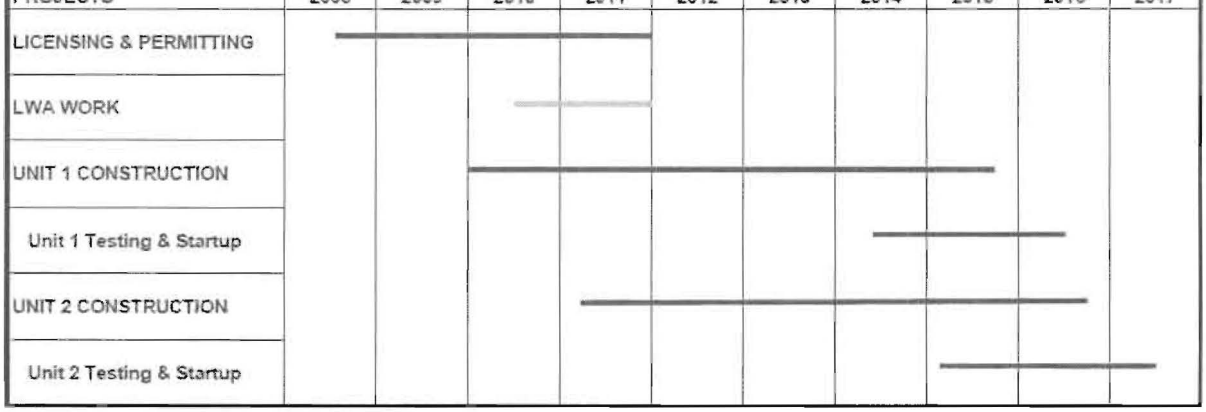


**EXHIBIT 1** *Source: 2008 Review Data Request 3-1*

The project team presented to the Senior Management Committee on March 16, 2009 an impact evaluation of a 20-month delay on the project timeline. This evaluation analyzed the time and near-term cost-implication of a delay on the total project. The Senior Management Committee took this presentation under advisement and asked the team to evaluate the impact over a potentially longer project delay scenario.

[17] PEF's response to FPSC Data Request-Levy 9.1

On March 23, 2009, the project team presented the committee with an impact evaluation for a 36-month delay on the project. The 20-month delay option has safety-related construction starting in late 2013, while the 36-month option has this work starting in 2015. The main distinction between the two the timelines is the 36-month delay includes additional float for the Combined Operating License approval process and additional time to complete the pre-safety construction work previously identified in the LWA. The 36-month assessment recognizes that the COLA approval may not be issued within the current NRC schedule dates.

[redacted]

PEF management states that they expect Westinghouse and Shaw, Stone & Webster to complete this evaluation sometime in August 2009. The company anticipates the results of this analysis will culminate in a change order and amendment to the current contract.

Therefore, the cost impact resulting from this delay is not currently known. In the near term, the company states that it anticipates the delay will defer a portion of the project's cost, between [redacted] through the issuance of the Combined Operating License. Determining the total financial impact on the project will require completion of negotiations with Westinghouse and Shaw, Stone & Webster and the company's evaluation of the current financial conditions. In addition to the company's request for contract renegotiations, PEF issued on April 30, 2009 a partial suspension to the EPC contract for work on the Levy project. PEF does not anticipate issuing an updated schedule until after these negotiations are finalized.

In light of the NRC's delay in issuing the review schedule for the company's COLA by the end of 2008, PEF provided its rationale for moving forward with the contract signed on December 31, 2008. The company believed its actions were reasonable, given the years of negotiations with the consortium which ensured that the '[redacted]'[18] However, company management states that the company did not conduct a formal cost benefit analysis prior to signing the contract in December (outside of the cost-benefit analysis of the needs determination proceeding).

The company states a major factor influencing its decision was [redacted]

[redacted]

[redacted]

[18] PEF's response to FPSC Data Request-Levy 7.4.

[redacted][19]

In February 2009, the NRC provided PEF with its anticipated review schedule for the Levy COLA. **EXHIBIT 2** details the current Combined Operating License review timeline issued by the NRC.

| PEF Levy Units 1 and 2<br>Combined Operating License Review Schedule Issued by the NRC<br>February 2009 | |
|---|---|
| **Key Events** | **Target Timeline** |
| ***Acceptance Review*** | |
| Docketing Decision Letter Issued/Acceptance Review Complete | 10/06/2008 |
| Review Schedule Established/Schedule Letter Issued to Applicant | 02/18/2009 |
| ***Safety Review*** | |
| Phase A - Requests for Additional Information (RAIs) and Supplemental RAIs | 02/11/2010 |
| Phase B – Advanced Final Safety Evaluation Report (SER) without Open Items | 09/30/2010 |
| Phase C - ACRS Review of Advanced Final SER | 02/10/2011 |
| Phase D - Final SER | 05/05/2011 |
| ***Environmental Review*** | |
| Phase 1 - Environmental impact statement (EIS) scoping summary report issued | 05/28/2009 |
| Phase 2 - Draft EIS issued to EPA | 10/26/2009 |
| Phase 3 - Response to public comments on draft EIS issued | 04/06/2010 |

[19] PEF Response to FPSC Data Request Levy 7.4.

| | |
|---|---|
| Phase 4 - Final EIS issued to EPA | 09/22/2010 |
| ***Hearing and License*** | |
| Commission or Atomic Safety and Licensing Board hold mandatory hearing | *TBD* |
| Commission decision on issuance of COL application | *TBD* |

**EXHIBIT 2** *Source: Nuclear Regulatory Commission*

The company will continue to apply for the regulatory approvals necessary to initiate construction on the units at the Levy project. **EXHIBIT 3** details the required approvals that the company anticipates initiating or receiving through 2010.

**Required Licenses, Permits, and Approvals for the Levy Nuclear Plant 2009-2010**

| Required Approvals | Regulatory Authority | Anticipated Filing/ Anticipated Approval |
|---|---|---|
| US DOT Registration – Hazardous Material Shipments | Federal | May-June 2010 |
| EPA Spill Prevention, Control and Countermeasure Plan | Federal | June 2010 |
| USFWS Consultation | Federal | Approximately May 2009 |
| UFWS Gopher Tortoise Incidental Take Permit | Federal | Approximately May 2009 |
| NMFS Magnuson-Stevens Act/Fisheries Management Plan | Federal | Approximately November 2010 |
| USCG Aids to Navigation | Federal | Approximately November 2010 |
| Section 404 Permit/Rivers & Harbor Act | Federal | Anticipated approval August 2009 |
| FDOT Driveway/Access Authorization | Federal | Anticipated application in May-June 2009 |
| FDEP Surface Water Management Plan | State | Approximately June 2009 |
| FDEP Erosion & Sedimentation Control Plan | State | Approximately December 2010 |
| FDEP Stormwater Pollution Prevention Plan | State | Approximately December 2010 |
| FDEP State Lands Use (upland lease) | State | Approximately May 2009 and December 2009 |
| FDEP/SWFWMD Consumptive Use Permit | State | Anticipated approval August 2009 |
| FDEP NPDES Permit, Section 316a | State | Anticipated late 2009 |
| FDEP NPDES Permit, Section 316b | State | Anticipated late 2009 |
| FDEP NPDES Construction Stormwater Permit | State | Approximately May 2009 and December 2009 |
| FDEP NPDES Operating Stormwater Permit for Industrial Activities | State | December 2010 |
| FDEP Dewatering Permit | State | Anticipated approval August 2009. |
| FDEP Florida Notification of Regulated Waste Activity/Regulation Standards | State | May-June 2010 |
| FDEP Prevention of Significant Deterioration Construction Permit | State | Permit received February 2009 |
| FDEP Electric and Magnetic Fields Standards | State | Anticipated approval August 2009 |
| FDEP Aboveground Storage Tank Registration | State | Anticipated application in August 2009 |
| FDEP WMD/Office of Greenways and Trails Use of State Owned Lands | State | Anticipated approval in May 2009 |
| FDEP Environmental Resource Permit and Sovereign Submerged Lands Lease | State | Permit received March 2009 |
| FDEP NPDES Construction Stormwater Permit and Notice of Intent for Stormwater General Permit | State | Approximately May 2009 and December 2009 |
| FDEP Environmental Resource Permit | State | Anticipated approval August 2009 |
| FDEP Sovereign Submerged Lands Lease | State | Anticipated approval August 2009 |
| FDEP/SHPO National Historic Preservation Act | State | Anticipated approval August 2009 |
| FDEP Section 401 Water Quality Certification | State | Anticipated approval August 2009 |
| FDEP/FFWCC Incidental Take Permit | State | (See above) |
| FDEP/DCA Coastal Zone Consistency Determination | State | Anticipated approval August 2009 |

| | | |
|---|---|---|
| FDEP Coastal Construction Control Line Permit | State | Anticipated approval August 2009 |
| Levy County Zoning/Land Use Compliance | County | Anticipated application in June 2009 |
| Levy County Driveway Permit | County | Anticipated application in May-June 2009 |

**EXHIBIT 3** *Source: Data Request 5-7*

In addition to PEF's Levy site COLA application, the NRC is reviewing the AP1000 design Certification Revision 17 and the AP1000 lead reference COLA (currently the Tennessee Valley Authority Bellefonte project). Both of these reviews must be completed prior to the NRC issuing the PEF Combined Operating License. According to PEF, the NRC had anticipated completing its Rulemaking of Revision 17 by February 2011, but has delayed the review completion estimate to August 2011. However, the NRC will not issue any AP1000 Combined Operating License prior to the resolution of the design Certification Revision 17. The current timeline has the AP1000 design issues being resolved in August 2011 and PEF's Combined Operating License issued in December 2011, representing a four-month gap. If there is any delay to the Revision 17 schedule, the Levy COLA approval could be delayed.

**Transmission**

Along with these major milestones, the company has also made progress in obtaining its transmission corridor for this project and other regulatory authorization necessary to start construction on this site. In addition to the progress of the Levy project, the company has continued its efforts to develop the transmission expansion for the project. The company performed several feasibility studies in 2008 and 2009 to determine the corridor paths, site feasibility, and type of facilities needed for the project. The company completed a Corridor Study and a Conductor Study for the new facilities. The company also hosted over 20 community outreach "open houses" to discuss the transmission expansion project. The current transmission project plan includes an additional 185 miles of new transmission lines and reconditioning 120 miles of existing lines, impacting 1000-1200 land parcels.

## 2.2 Key Project Developments- Crystal River 3 Uprate

### What is the current status of the Uprate project?

Progress Energy Florida is moving forward with an Extended Power Uprate (Uprate) to the Crystal River 3 nuclear generation unit. The company will perform the second phase of a three-phase process in fall 2009, with the final phase scheduled for fall 2011. For the fall 2009 phase, the company states that it is on target to perform the work within its budgetary forecasts. The company is transitioning from the planning and preparatory phase to the scheduling and implementation phase for its 2009 activities.

The company is currently self-managing the Uprate work for its Crystal River 3 unit. The company believes that its management team is well prepared to plan, develop, and oversee the work associated with the project. The company has developed detailed procedures to outline and direct its staff to move forward as planned. The organization experienced reorganization during late 2008. Along with the reorganization, two key members of the management team left

the company in late 2008 and early 2009. The company does not believe that the departure of these key members of the management team will impact the overall implementation of its upcoming Uprate work in fall 2009.

## What is the current schedule for the Crystal River 3 Extended Power Uprate project?

In 2007, the company completed Phase 1, or the Measurement Uncertainty Recapture, resulting in an increase of 12 MWe for the unit. In the fall of 2009, the company is scheduled to complete Phase 2, a large portion of the balance of plant replacements, which should result in an increase of 28 MWe. In 2011, the company plans to perform the necessary work on the reactor components, which will have the greatest increase in output of 140 MWe, and conclude Phase 3. The project is scheduled to be closed out following testing in 2012. Once complete, the impact of the Uprate should increase output by 180 MWe (20.1 percent). Along with the Phase 3 work necessary to modify the unit's output, the company will construct a new cooling tower for the unit in 2010. The cooling tower is necessary to alleviate the rise in discharge water temperature created by the higher operating temperatures resulting from the unit Uprate.

In conjunction with the Phase 2 Uprate work scheduled for fall 2009, two additional and separate, major projects will be completed during this outage: a steam generator replacement and refueling for the unit. The costs associated with these projects are not included in FPSC Docket 090009-EI; however, the company must ensure that each project's schedule does not impact the overall workflow. Currently, the company anticipates the Uprate work to take [redacted] within the outage scheduled for [redacted] The company has included an extra [redacted] into the outage schedule for any unforeseen delays. The Uprate management team has been working with senior management to ensure that all three projects scheduled for the 2009 outage can be performed in tandem without adverse effects.

The company is currently finalizing its schedule for the Phase 2 Uprate work. The steam generation replacement project will drive the critical path for the outage. Therefore, the Uprate work will be scheduled within the total steam generation replacement and refueling window. The project controls scheduling manager combined the 12 Uprate work schedules (which include all 18 major component replacements) into a master schedule in April 2009. After adjustments are made, a final Uprate schedule of work will be issued by July 2009. Along with coordinating the 12 components of the Uprate project, the management team is working with the steam generation project team and the maintenance project team to ensure that the workflow for all of the projects can be completed concurrently. Because of the significant amount of work planned for Crystal River 3 during the fall 2009 outage, each project is reliant on the successful implementation of the other projects to ensure that there is no delay of the restart of the unit in December 2009. The major components of the Uprate work scheduled for fall 2009 are shown in **EXHIBIT 4**.

As part of the Phase 2 work, the company scheduled to replace two low pressure turbine rotors. The Company states it has closely monitoring the industry activities associated with the September 2008 low pressure turbine failure at the D.C. Cook nuclear plant in Michigan. These

components are of a similar design as the CR3 Uprate rotors. Once the relevant technical issues are fully understood and reviewed, PEF will finalize its decision concerning which turbine rotor design to install at CR3. This may prevent this work from being completed in Phase 2.

| Crystal River 3 Uprate Fall Outage<br>Major Replacement Components Arrival Dates | |
|---|---|
| **Major Component** | **Scheduled to Arrive at CR complex** |
| Condensate Heat Exchanger 7A (MSR Shell Drain Heat Exchanger) | June 6, 2009 |
| Condensate Heat Exchanger 7B (MSR Shell Drain Heat Exchanger) | June 6, 2009 |
| Secondary Cooling Pump 1A/1B (Impeller & Motor) | June 15, 2009 |
| Condensate Heat Exchanger 3A (Low Pressure Feedwater Heat Exchanger) | June 15, 2009 |
| Condensate Heat Exchanger 3B (Low Pressure Feedwater Heat Exchanger) | June 15, 2009 |
| Secondary Cooling Heat Exchanger 1A | June 15, 2009 |
| Secondary Cooling Heat Exchanger 1B | June 15, 2009 |
| Turbine Building Heat Exchanger 1 (Isophase Bus Duct Cooler Unit) | June 22, 2009 |
| Main Stream Valves 9/10/11/14 (Turbine Bypass Valves) | June 24, 2009 |
| Main Generator Exciter | June 29, 2009 |
| Main Generator Rotor | June 29, 2009 |
| Moisture Separator Reheater 3A | July 6, 2009 |
| Moisture Separator Reheater 3B | July 6, 2009 |
| Moisture Separator Reheater 3C | July 6, 2009 |
| Moisture Separator Reheater 3D | July 6, 2009 |
| Turbine Building Heat Exchanger 7A/7B (Turbine Lube Oil Cooler Bundles) | July 16, 2009 |
| Low Pressure Turbine 'A' Rotor* | July 30, 2009 |
| Low Pressure Turbine 'B' Rotor* | August 31, 2009 |

**EXHIBIT 4** *Source: Data Request 5-6*

In April 2009, the Uprate project team provided senior management with a *180 Day Readiness Review* on the scheduled work. At this time, the company still anticipated the total project cost for all three phases to be $461 million with an estimated fuel savings of $2.6 billion through 2036. The readiness report highlighted several issues impacting the schedule of the project, noting that the engineering work packages were not completed in the specified timeline. PEF management states that in late 2008 one of its major contractors, AREVA, was not maintaining its agreed-upon schedule for finalized engineering packages, and this delay had a downstream effect on project preparations. Management states that it worked with AREVA in late 2008 and early 2009, at the vendor's cost, to finalize the engineering packages and bring the project back in line with the schedule timeline. In May 2009, company management stated that the concerns identified in the six-month countdown status report had been resolved by the project team. The project management team anticipates providing additional readiness updates as the project moves closer to implementation.

In addition to finalizing the schedule for the Phase 2 work, the company is developing a Management Intervention Plan for use during the outage. The company states this plan is designed to direct management communications as a result of any unforeseen events that may occur while completing the outage work. The purpose of the plan is to assure that "critical

outage time is not lost due to poor communications and work stoppages." [20] The company anticipates approval of this plan in June 2009.

Regulatory Approval

PEF received the Site Certification from the Florida Department of Environmental Protection, which was necessary to complete the scheduled Phase 2 work on the unit. The company is currently working to receive the necessary certifications for the site preparation and staging areas for the project.

In third quarter 2009, the company plans to submit its request to the NRC for approval of Phase 3, or the nuclear reactor power increase. The work required for this increase is scheduled to take place during the 2011 outage. PEF anticipates that the review and approval timeline will take approximately one year, with a response in 2010. This review by the NRC will involve its technical and environmental staffs, along with its advisory committees.

The company is required to obtain several permits for the construction of the South Cooling Tower project for Phase 3. Specific requirements are detailed in **EXHIBIT 5**. The company states it has initiated the necessary application requirements to receive these approvals by the necessary dates. Construction on the South Cooling Tower project is scheduled to begin in early 2010 and must be completed prior to the Phase 3 Uprate work scheduled fall 2011.

**Crystal River 3 Uprate South Cooling Tower Project**
**Regulatory Permit Schedule**

| Requirement | Need Date |
|---|---|
| Environmental Resource Permit for the Lay down area | July 31, 2009 |
| Industrial Waste Water Permit modification | July 31, 2009 |
| NPDES Permit Modification/Renewal | January 2, 2010 |
| US Army Corp of Engineers Permit | January 2, 2010 |
| Environmental Resource Permit for Construction | January 2, 2010 |
| Air Permit for Construction | January 1, 2010 |
| Air Permit (Title V) | January 1, 2010 |
| CREC Conditions of Certification Amendment | *TBD* |
| In-water Work Approvals under Manatee Protection Plan | *TBD* |

**EXHIBIT 5** *Source: Data Request 1-2*

[20] PEF Response to FPSC Data Request Crystal River 5.4. Bates 09PMA-DR5CR3-4-000173.

# 3.0 Project Oversight & Controls

## What is the current Project Management organization for the each project?

Levy Nuclear Project

As stated in Section 2.2, the company initiated a restructuring of its Nuclear Projects and Construction department in January 2009. In late 2008, the Vice President of Nuclear Projects and Construction, who had served as the Levy project sponsor, left the company. With this reorganization, the Levy project oversight became part of the Nuclear Plant Development department. This department is managed by the Vice President, Nuclear Plant Development-Levy who reports to the newly created Executive Vice President of Corporate Development.

The company has developed a progressive organizational chart that will expand and evolve over time as the project moves from planning to implementation. The organization has seven Directors/General Managers who oversee components of engineering, licensing, and regulatory; construction and contract management; contracts, business, and financial; and Project Management Center of Excellence. Each area has established its staffing needs for the current planning stages and identified future staffing needs once construction begins, and has documented these changes within its future organizational forecasts. **EXHIBIT 6** details the current 2009 organizational chart for the Levy project Nuclear Plant Development.

**Nuclear Plant Development**
**2009 Levy Project Organization**

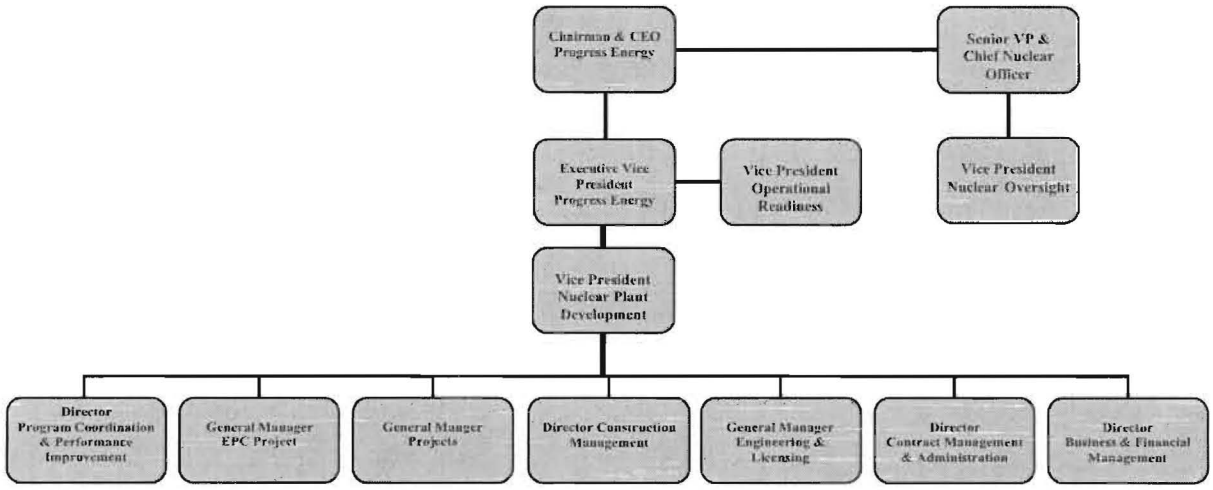


**EXHIBIT 6** *Source: Data Request 1-35*

In addition to the Nuclear Plant Development department for the Levy project, the Generation and Transmission Construction department is responsible for the development of the new transmission components for the project. This department is managed by the Vice President of Generation and Transmission Construction, with a General Manger, Levy Base Load

Transmission Programs overseeing all aspects of the Levy transmission project. The General Manager oversees four project areas: Siting, Engineering, Major Projects-Levy, and Substations.

Crystal River 3 Extended Power Uprate

The company initiated a restructuring of its nuclear construction organization in December 2008. Previously, the company's construction efforts for both the Crystal River 3 Uprate project and the planning phase of the Levy project were managed within the Nuclear Projects and Construction Department, reporting to the Vice President, Nuclear Projects and Construction. In December 2008, the company migrated the two projects into separate organizations.

The Uprate project is currently under the recently formed Nuclear Projects Organization, which reports to Progress Energy's Vice President, Nuclear Engineering. The Nuclear Projects group is managed by a Director (the position was titled General Manager through June 2009), who oversees the major projects at each of the nuclear units within Progress Energy's fleet. However, the General Manager, Nuclear Projects left the company in April 2009 and the position remained vacant through June 2009. The company states that the departure of the prior manager should not negatively impact the current Crystal River 3 projects or its schedule. **EXHIBIT 7** details the current Nuclear Projects Organization.

**Progress Energy**
**2009 Nuclear Projects Organization**

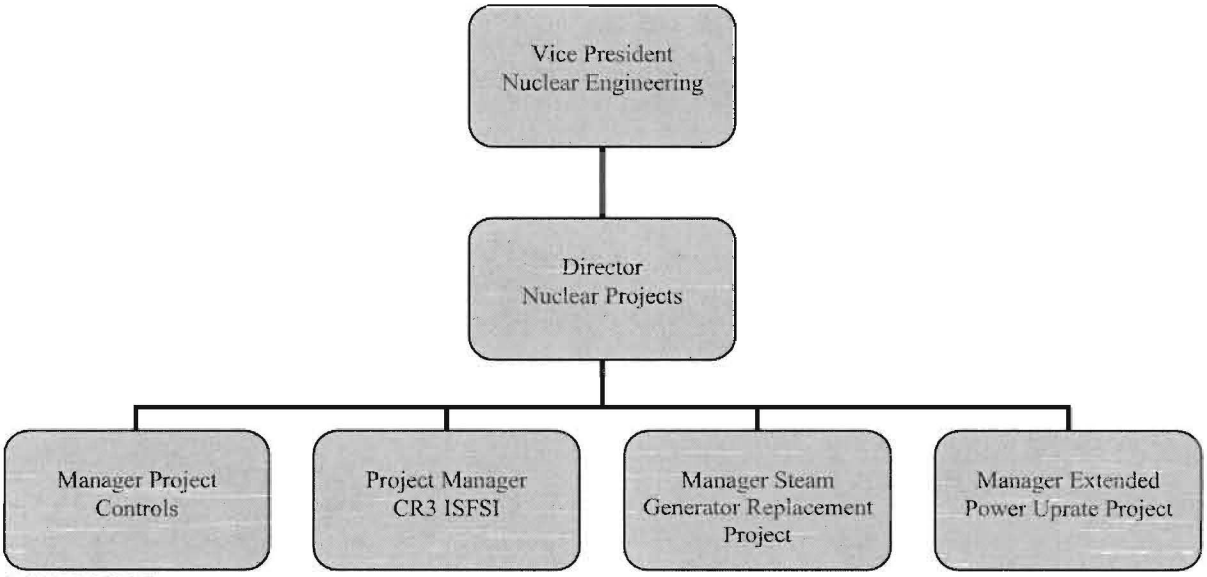


**EXHIBIT 7**

*Source: Data Request 1-7*

The Crystal River 3 Uprate Project has five units that report to the Project Manager. These include Engineering, Project Implementation, Balance of Plant work, Point of Discharge, and Yard Operations. Each unit is managed by a Superintendent who reports directly to the Uprate Project Manager. As of April 2009, in addition to the General Manager, the positions of Superintendent of Point of Discharge, and the Superintendent of Yard Operations are vacant

(although the Point of Discharge responsibilities will not commence until 2010). **EXHIBIT 8** details the Uprate Project organization.

**Nuclear Projects Organization**
**2009 Extended Power Uprate**

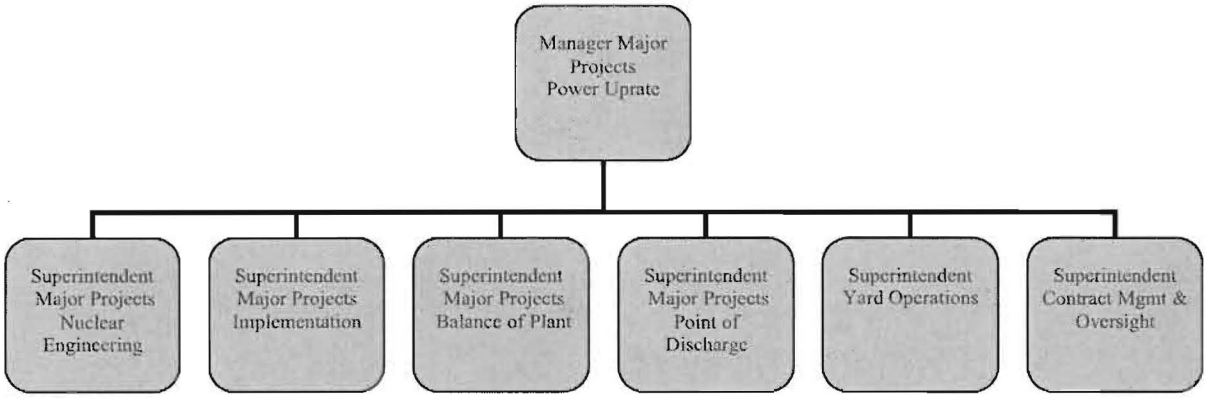


**EXHIBIT 8** *Source: Data Request 1-7*

The Nuclear Projects organization also includes a unit responsible for the project control oversight for each of the ongoing projects for Crystal River 3. This group is managed by the Manager, Project Controls who reports to the Director, Nuclear Projects. This unit is responsible for monitoring the overall project controls, scheduling, financial oversight, and safety issues. As the project transitions from the planning stage to implementation stage, one major responsibility for this unit is to manage the schedule for the three projects scheduled for work during the fall 2009 outage. The company states this will ensure that each project is implemented successfully without impacting or hampering the other projects. **EXHIBIT 9** details the Project Controls organization for the Crystal River 3 projects.

**Nuclear Projects Organization**
**2009 Project Controls**

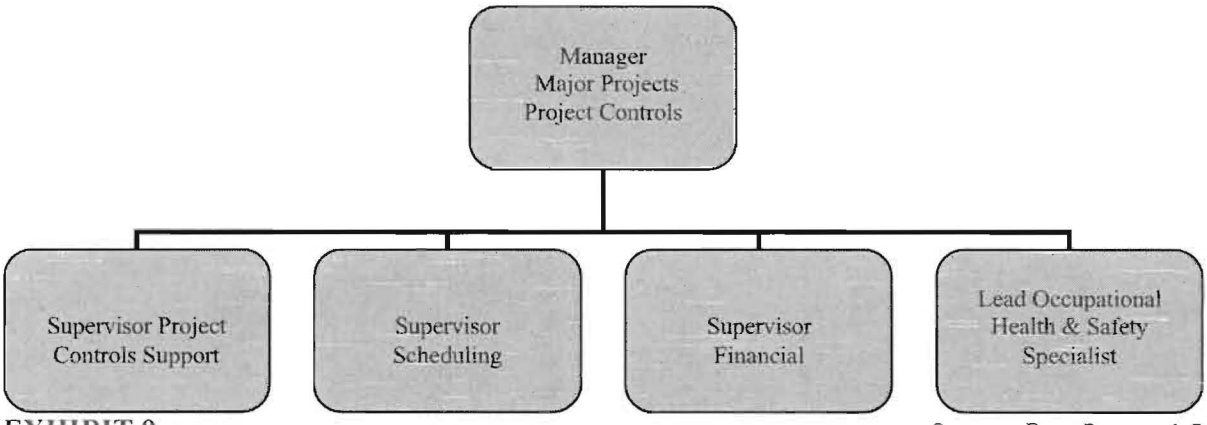


**EXHIBIT 9** *Source: Data Request 1-7*

## What is the current Project Management control environment for each project?

**Levy Nuclear Project**

The two major vendor relationships for the Levy project are the Joint Venture Team, the organization hired to prepare the Levy project Combined Operating License and Site Certification Application, and the Westinghouse and Shaw, Stone & Webster Engineering, Procurement, and Construction contract work. The company has developed a monitoring oversight and status review process for each of these contracts that include vendor oversight and production meetings. The results of these weekly meetings and oversight report are provided to the Nuclear Project Development management team, the Levy project team, and the technical leadership for the project.

The Joint Venture Team has been providing the COLA preparation work for the company since 2007. During this time, the management oversight and monitoring evolved as the COLA work transitioned from application submittal to assisting with the NRC application review process. The Joint Venture Team conducts weekly production meetings with the project team to discuss the production issues from the week. These meetings tend to focus on upcoming deadlines, schedule-related issues and project scope.

The Joint Venture Team also provides PEF management a monthly report that details the status of the project, while focusing on larger, project-management issues. This report includes the Key Performance Indicators on how the project is tracking for schedule and cost. These indicators allow management to clearly assess, on a monthly basis, how well the costs and schedule is progressing for the project. The reports also identify risks and risk mitigation strategies and outline any necessary scope changes identified by the vendor.

Westinghouse and Shaw, Stone & Webster are contractually obligated to provide monthly status updates to company. PEF states that this requirement will ensure that it can remain aware of any challenges that arise during the course of the project. This report will be a critical monitoring control for PEF as the project moves into the construction phase.

**Crystal River 3 Extended Power Uprate**

The project management teams for Uprate and the Project Controls unit work together to provide management oversight and monitor the status of the Uprate project for Crystal River 3. The groups use a combination of management reports and vendor oversight to monitor and evaluate the status of the projects. The company believes that these controls will ensure that this project, along with the other major projects scheduled for the fall 2009 outage, will have a successful implementation.

In April 2009, the company provided a *180 Day Readiness Review* of the Uprate project for senior management. In this report, the Project Manager detailed the status each of the major sections of the project six months prior to the outage. Overall, the Project Manager reported that the scope will be completed within the outlined schedule and within the approved cost model. The team noted that the status of the project was at an assessment grade of "yellow" on the color scale green, yellow, red. The report notes that there are outstanding action items that must be

resolved prior to the scheduled outage. There are two areas, the Work Order Planning and Plant Modifications sections, which the company recognizes as a "red" and are of most concern. In May 2009, the company reported that all of the "red" issues had been resolved. Also, the project management team states that the project is coded as a heightened level of "yellow" not because of any significant concerns, but rather to maintain a diligent focus on the significant impact the project has on the Crystal River 3 unit.

## What are the information and communication controls for each project?

**Levy Nuclear Project**

The company has a management reporting system of controls that allows project and senior management to stay updated and knowledgeable of the project's status. As the project progresses, the scope of these reports expand along with the project. PEF states that these status reports allow the company to document and monitor the successful implementation of the project schedule and the associated costs. This monitoring includes both the projection of PEF's internal staffing needs along with the monitoring and oversight of its contractors and vendors.

The monthly Performance Report is the main document currently used by the project management team to provide senior management, including the CEO and Chief Nuclear Officer, with updates on the project status. This report includes the current risk summary for the project and status of the projects Key Performance Indicators. Additionally, the report provides a financial update on the project. As the company moves from development to implementation, the company will expand its communication controls as the project expands.

**Crystal River 3 Extended Power Uprate**

The *Integrated Project Plan* for the Uprate contains specific criteria for disseminating status information for the project. This includes specific information for all areas of the project and for whom the information is intended. This is in accordance with the company's communication plan. **EXHIBIT 10** details the weekly, monthly, and quarterly updates provided to PEF management.

The Uprate project team is charged with providing critical schedule and costs performance results to the senior management team for PEF. The senior management team is responsible for initiating the project with the issuance of an *Integrated Project Plan.* The project development team requests a specific project recommendation that includes a request for funding, a detailed schedule and the assumptions and constraints of the project plan. This plan is reviewed by the senior management team, which for this project includes the President and CEO of PEF, the Senior Vice President Energy Delivery, the Senior Vice President of Finance and the Progress Energy Chief Nuclear Officer. The original *Integrated Project Plan* for the Uprate project was initiated in March 2008, and the plan was updated in March 2009.

| Crystal River 3 Uprate Project Communication Matrix | |
|---|---|
| **Information** | **Audience** |
| ***Weekly Updates*** | |
| Action Items and Open Risk Items<br>Current and Next Week's Activities | Project Team |
| Safety Issues<br>Resource Requirements<br>Activities Completed/To Be Completed<br>New/Carryover Risks and Issues<br>Issues That Affect Other Tasks or Project Leads<br>Completed the Development of the Metrics to help Manage the Schedule and Cost | Project Management |
| ***Monthly Updates*** | |
| General Project Status<br>Special Interest Items | Stakeholders |
| Project Cost, Schedule, and Scope Status<br>Review of Issues, Risk, Work-Arounds, Accomplishments, and Projection of Future Status and Accomplishments | Line Management and Above |
| Vendor Accomplishments and Issues | Project Team |
| Oversight of the Project Issues, Funding, Restraints, Resources Utilization, and Upcoming Project Needs | Project Sponsor and Project Manager |
| ***Quarterly Updates*** | |
| Project Overview<br>Issues, Risks, and Impact on Other Organizations | Line Supervision and Management |
| Project Cost Status and Relationship to Estimated Spending and Scope | PRG and SMC Presentation Updates |
| Nuclear Safety | Plant Nuclear Safety Committee |

**EXHIBIT 10** *Source: Data Request CR5-2*

## What are the current controls for monitoring the schedule and cost of each project?

The company requires that the management team develop an *Integrated Project Plan* for each major project implemented by the company. This plan establishes the financial requirements necessary to complete the project along with the project scope, deliverables, and risks associated with the project. Senior management uses this document to assess the overall feasibility of the project and to track the overall financial commitment for the project. For both the Crystal River 3 project and the Levy project, PEF has maintained an *Integrated Project Plan* and both have been approved by the company's executive management.

### Levy Nuclear Project

On a quarterly basis, the company meets with the Joint Venture Team management to discuss in-depth issues that are identified within the monthly reports. The company uses this

opportunity to address any significant issues with the scope or schedule of the contract. The company believes this oversight monitoring is a major control in ensuring its contracted work is implemented as agreed upon. FPSC audit staff reviewed copies of the Joint Venture Team monthly reports for the review period.

With the signing of the EPC contract in December 2008, PEF expanded its monitoring and oversight program with Westinghouse and Shaw, Stone & Webster. Westinghouse and Shaw, Stone & Webster provided PEF with monthly status reports for work performed prior to the signing of the EPC, however, the oversight requirements by PEF were formalized in the contract. This formal monthly status report has been a work-in-progress during the first quarter of 2009.

The company has worked with Westinghouse and Shaw, Stone & Webster to refine and develop the expectations of the monthly status report. Although there has not been significant work performed on behalf of the consortium, PEF states that it wants to establish the level of report detail at the onset of the project. The company provided FPSC audit staff with copies of each monthly report issued since January 2009, and staff notes that the detail of this information has expanded with each passing month. FPSC audit staff believes that as the project continues to progress, this report will be critical in monitoring the status of the project.

The Nuclear Plant Development management team compiles the results of these vendor meetings and status reports, along with its own internal status updates, into a formal Nuclear Plant Development Performance Report. This report is designed to inform the President and CEO of PEF, the Progress Energy CNO, and other key senior members of the senior management team on the status of the project. It provides a vehicle for monitoring the Key Performance Indicators of the project. FPSC audit staff recognizes that the Key Performance Indicators are one of the most critical tools used by the company to monitor and assess the project on an ongoing basis. Specific indicators included in this report are:

Safety (Personnel Safety Events)

Quality (Corrective Action Program Health, Self-Assessment Benchmark Health, OE Program Heath)

Regulatory (Levy RAI Timeliness, ITAAC Timeliness, ITAAC Quality, NRC Audits/Inspection Results, Environmental Permits, Environmental Compliance, and Environmental Index)

Schedule and Production (Key Milestones—Non EPC, Engineering Reviews—Standard, and Engineering Reviews—Non-Standard)

Cost (EPC Invoice Escalation and Regulatory Recovery)

Cost—LPN (Levy Capital Costs, Levy Project-to-Date Actual vs. Authorized, Vendor CPI: Owner Engineer for LNP 1&2, Vendor CPI: SCA for LNP 2&3), Vendor CPI: COL Application for LNP 1&2, and Vendor CPI: COLA Phase II Support for LNP 1&2)

Resources (Progress Energy Staffing, Project Staff Augmentation)

Project Management (Levy EPC Implementing Procedures).

Westinghouse and Shaw, Stone and Webster reports to PEF, on a monthly basis, the status of its Key Performance Indicators related to the project. PEF will use these indicators to monitor and evaluate the status of the project over time. Requiring this information be provided on a monthly basis will allow PEF to maintain a constant focus on status of its contractors. The indicators provided by Westinghouse include:

**Crystal River 3 Extended Power Uprate**

The company stated in its original *Integrated Project Plan*, issued March 2008, that the expected cost of the Crystal River 3 Uprate project would be approximately $461.5 million. At the end of 2007, the company states that it had spent $41.4 million on the project. In the most recent update to the *Integrated Project Plan*, issued March 2009, the company states that the total cost will be approximately $461.4 million. At the end of 2008, the company states it had spent $111.1 million on the project. The updated *Integrated Project Plan* did not identify any factors that would cause the project to experience an increase in costs. The unit's joint owner's responsibility is for 8.2 percent of the costs.

To ensure that the project remains on budget, the project team states focus is maintained on costs throughout each stage of the process. Each the monthly management report includes a section on the costs. These reports detail the overages or underages on cost and spending levels. The company states that this allows the company to accurately assess at any point in time, the overall spending for the project.

The Projects Control unit provides a centralized organization point for each of the projects being performed on the Crystal River 3 Unit. This unit is charged with monitoring the overall status of each project to ensure that the costs and schedules are maintained in accordance with the master schedule. This requires continued interaction with each project management team.

In addition to monitoring the costs, the company has in place a control to ensure that all additional costs are documented and approved. The company requires that an *Integrated Change Form* is completed for any task that is outside of the agreed-upon scope and price. This form must be completed by the individual requesting the change, and approved by the appropriate

level of management. These integrated change forms are monitored by the project controls group, and all changes are incorporated into the overall project. If the project exceeds the budget set in its original project plan, the project team must request an amendment to its *Integrated Project Plan* with senior management. The company states it has not made any budgetary changes to the Uprate *Integrated Project Plan.*

In 2009, the project team has developed a monthly report that examines the major Key Performance Indicators and task metrics for the Uprate project. This report will be beneficial as the project continues to move forward to implementation in the fall. While this report would have been beneficial throughout the planning phase of the project, the addition of a report that includes such critical information in a single format should assist senior management and the project team as it moves forward to the 2009 work. The six overall project Key Performance Indicators are:

Schedule Performance
Cost Performance
Budget Performance
Schedule Activity Completion
Staffing Levels
Scope Controls

In addition to the overall project Key Performance Indicators, the project team developed a series of indicators for each of the major task scheduled for the Phase 2 work. Each of the tasks is evaluated on the following five topics:

Human Performance
Quality Performance
Schedule Performance
Cost Performance
Contract Performance

As the project has transitioned from the planning phase to the implementation phase, the company has placed a significant focus on monitoring the production of the key system components that are scheduled to be replaced in the 2009 outage. The company implemented a control to evaluate and monitor its vendors' production of these components.

## How does the company assess the risk of each project?

The company documents a project's early risk analysis and mitigation efforts in the initial *Integrated Project Plan*, which details the project scope and requests the funding from senior management. The risks identified within the *Integrated Project Plan* are high-level risks that could impact the successful completion of the project, and include such risks as cost escalation, scope changes, availability of skilled craft labor, and state and federal regulatory approvals. This risk analysis includes an impact statement and response/action plan for the risk. Each risk is

evaluated for likelihood and consequence. **EXHIBIT 11** and **EXHIBIT 12** details the risk criteria used by the management team for both projects.

| Risk Assessment Criteria<br>Probability Scales | |
|---|---|
| Very Low | <10% |
| Low | 11-33% |
| Moderate | 34-65% |
| High | 66-89% |
| Very High | >89% |

EXHIBIT 11 *Source: Data Request1-6b*

| Risk Assessment Criteria<br>Impact Scales | | | | |
|---|---|---|---|---|
| **Category Level** | **Cost** | **Schedule** | **Quality** | **Compliance** |
| Minimal | <2% | No slip | No reduction | Project compliant |
| Moderate | ≥2 & <5% | Slip occurs, but has little or no impact to project | Quality reduced but has little or no impact | Local/State/Federal warning or Near Miss |
| Significant | ≥5 & <10% | Slip occurs, and has a significant impact on the project | Quality reduced and has a significant impact on the project | Local/State/Federal violation incurred or Recordable/Lost Time Incident |
| Severe | ≥10 & <15% | Slip occurs, and has a noticeable impact on the enterprise | Quality reduced and has a noticeable impact on the enterprise | Local/State/Federal Stoppage or Fatality |
| Critical | ≥15% | Unacceptable slip occurs | Unacceptable reduction in quality | Local/State/Federal Stoppage or Fatality |

EXHIBIT 12 *Source: Data Request1.6b*

Levy Nuclear Project

The Nuclear Plant Development group has taken a phased approach to the Levy project. With the project in its early, pre-construction phase, the company has focused on the overall project feasibility, obtaining regulatory and licensing approvals, and scheduling. In addition to these risks, the management team maintains a risk matrix that is updated with the current identified risks for the project. Each risk is evaluated and analyzed for impact and probability and rank for severity. With the project moving from development to design and construction, the risk matrix will evolve to include more design and technical risks associated with the project.

With the signing of the EPC contract, the Nuclear Construction group charged Sargent & Lundy and Worley Parsons, to expand the current risk assessment to include more detailed risks associated with the project, including evaluating the company's risk management platform and database for adequacy. The company states its intent was to assess whether another commercially available product would be beneficial to the project. The assessment included a report on how the company's risk management tool and assessment platform should be developed to effectively manage the project's risk. The assessment evaluated six viable products based on several criteria, and the company selected a new risk management platform, Enterprise Risk Register© to manage risk through the design and construction phases of the Levy project.

**Crystal River 3 Extended Power Uprate**

The Major Projects group maintains a risk assessment matrix to monitor and assess the current risks associated with the Uprate project. When a risk is identified by management, it is evaluated for its overall impact to the project and ranked by severity. The project team has established a process to capture and track the project risks from design through implementation. Progress Energy's corporate risk management process consists of:

Establishing Context
Identifying Risk Events
Assessing Probability and Impact
Developing Response and Strategy

The company's Project Risk Management procedure, PJM-SUBS-0008, implemented in March 2009, provides detail on how to evaluate and assess the risk probability and impact on a project. In accordance with procedures, the management maintains a risk register and matrix for all the identified risks associated with the Uprate project. Each risk is assigned to a risk manager who is responsible for monitoring and resolving the risk concern.

Prior to the [redacted] outage, Uprate management must resolve, mitigate, or create a contingency plan for all open "high" severe and critical risks. Along with the Uprate project, senior management must also ensure that all three projects has resolved or mitigated all "high' severity risks prior to the outage. This should ensure that there will not be a negative impact to the Uprate work due to a risk oversight of another unit.

The Uprate project management team states that this list is fluid and continually evolves. While items may be resolved at any time, an additional risk may be added or the status of an existing risk may be elevated to a higher level of concern. In late 2008, the company's management reports documented concerns with the effective use of the risk matrix by the project team. PEF management stated that extra emphasis was placed on the risk analysis by the project team, including assigning a manager to oversee the process. The issue was resolved in early 2009, and FPSC audit staff notes the current management reports no longer list the risk assessment matrix as a concern.

## What are the company's current auditing and quality assurance controls?

The company's Audit Services Department has increased its focus on auditing the construction projects underway at Progress Energy. In 2008, the audits performed on major construction projects mainly evaluated the financial and operational aspects of the projects. However in 2009, audit management states its focus shifted to more direct construction auditing. This focus will directly examine the risks associated with the projects planning and construction, and include such areas as business and regulatory environments, schedule, quality and inspections, and cost management. The company states that 19 percent of its overall 2009 audit plan is devoted to construction auditing.

**Levy Nuclear Project**

PEF Audit Services Department completed an audit on the Levy County Governance and Controls during March 2009. [redacted]

PEF management reviewed each recommendation, developed an action plan assigning ownership of each recommendation, and establishing a completion date.

The Quality Assurance and Internal Audit groups plan several internal Levy project reviews for 2009. Two Quality Assurance reviews are scheduled to be completed during 2009. A Nuclear Oversight audit focusing on new plant development is scheduled for the third Quarter of 2009. The internal audit group has six planned audits in 2009 surrounding the Levy Project, including one assessing the EPC contract.

**Crystal River 3 Extended Power Uprate**

The Audit Services Department completed an internal audit of the Crystal River 3 Uprate project on December 12, 2008. [redacted]

[redacted]
Management responded to the audit report findings and addressed all indentified issues.

The Quality Assurance group conducted several vendor oversight trips throughout 2008, and plans to conduct future trips as the Crystal River 3 Uprate progresses and the implementation work begins for the project. These trips occur at specified milestones for product design and manufacturing, or as determined by management. The Quality Assurance group will work with the vendor to correct problems that are identified, resolve issues and keep the project schedule. FPSC audit staff verified that PEF vendor assessments were completed on the major components of the 2009 Uprate project. The company maintains the records of these assessments and monitors the results for future follow-up.

The Crystal River 3 Nuclear Oversight auditing group is charged with inspecting and monitoring the nuclear safety work performed at the Crystal River 3 unit. This group did not complete any nuclear oversight reviews related to the Uprate work scheduled for 2009. Nuclear Oversight management stated that the Uprate work being performed in 2009 relates to the Balance of Plant, and does not pose a nuclear safety threat. Therefore, this group did not evaluate or monitor the production of the components scheduled to be replaced in Phase 2.

## Are project control activities documented?

PEF has in place detailed procedures that direct the oversight and control of each project. The company has updated these procedures as each project progressed and developed over time. Additionally, the company developed and is continuing to refine standard procedures for project management, through its *Project Management Center of Excellence.* PEF states that these procedures provide guidance to project teams on the standard practices established by company.

**Levy Nuclear Project**

In addition to the current procedures that document the company's project management oversight, the project management team is developing new procedures that directly address the management of the Engineering, Procurement, and Construction contract. The company anticipates creating approximately 33 new policies and procedures to document how the company will manage the project under the new contract. [redacted] The company has established a timeline for completing these procedures, with a final date of November 2009.

**Crystal River 3 Extended Power Uprate**

Along with the detailed procedures that direct the Crystal River 3 Uprate project, the project management team developed a Task Plan for each major component being replaced during the fall 2009 outage. These task plans drive the workplan for each component of the project, and include the necessary details to fully implement the task. Specific areas addressed in the Task Plan include staffing responsibilities, equipment requirements, risks assessments, and cost controls.

# 4.0 Contract Selection & Contractor Management

## How does the company ensure that its contracts are priced appropriately?

PEF states that it takes steps to ensure all of its contracts are priced appropriately starting with its competitive bidding process. Formal solicitation of bids ensures a variety of priced proposals are received. Each bid is subjected to technical and commercial evaluations which are used to identify a winning bidder. These evaluations seek to ensure PEF is getting a viable total package from the winning bidder; the best price for the highest quality of work available.

The company states there are times when competitive bidding is either impractical or unnecessary, and single/sole source contracts are awarded. PEF's policies and procedures outline the requirements that must be met prior to issuing a single/sole source contract. Single/Sole source contracts must be authorized by the appropriate level of management, based on contract amount, and contain a written justification why the company did not use the competitive bidding process. A sole/single source contract will still undergo an evaluation similar to competitive bidding to ensure technical requirements are met, and prices are consistent with current market conditions.

PEF states that every contract, regardless of how it was awarded, will go through a thorough negotiation process to ensure PEF is getting the best price and terms possible. PEF's negotiation techniques may include requests for additional discounts, leverage fleet agreements and potential contract awards at other sites, rate comparisons from previous jobs and industry trends, and the financial stability of the vendor. The company stated that it does keep up to date with current industry trends and vendor issues that may be incorporated into the negotiation process.

Due to the magnitude of the Levy Project EPC contract signed in December, 2008, the company expanded its current evaluation process to include further independent reviews. Prior to signing the EPC contract, PEF included in its evaluation a review of the contract terms and conditions completed by PricewaterhouseCoopers and a review of the contract schedule and pricing by Burns and Roe. The results of these reviews are discussed further in this chapter.

## What are the company's current processes and controls for soliciting and evaluating contractor bid selection?

The Progress Energy Supply Chain Department is the governing entity for the procedures and controls affecting the company's procurement process. The Supply Chain Department acts as the agent for all functions including Requests for Proposal (RFP), supplier quotes, and the execution of contracts and purchase orders. The Supply Chain Department employs sourcing techniques that include the analysis of products and services to leverage expenditures, improve profits, and identify suppliers.

Contract requests are initiated using Passport, the company's software program that tracks, controls and provides for the requisitioning and contracting process. As shown in **EXHIBIT 13**, the contract request is approved by the appropriate management level based on its dollar amount. Once the requisition is reviewed and accepted, an RFP will be created and sent to the selected vendors. If the approving manager has concerns with the request, the requisition can be sent back to the local organization for further clarification. Once the need to create a new contract has been identified, PEF management will assign a designated representative that will be responsible for the management of the contract.

| Spending Approval Levels[21] | | |
|---|---|---|
| **Position** | **Purchase Requisition[22]** | **Contract Requisition[23]** |
| Subsidiary Board | Unlimited | Unlimited |
| Chairman of Subsidiary Board | $100,000,000 | $100,000,000 |
| President/ CEO | $75,000,000 | $75,000,000 |
| Senior Vice President | $2,500,000 | $20,000,000 |
| Department Head | $1,000,000 | $5,000,000 |
| Section Head | $250,000 | $500,000 |
| Unit Head | $50,000 | $100,000 |
| Sub-Unit Head | $10,000 | N/A |

**EXHIBIT 13** *Source: Data Request 1-34a*

As part of the requisition process, a list of potential vendors is provided to contract facilitators and/or Supply Chain Department to ensure all vendors are capable or commercially qualified to complete the work requested. Work that is nuclear safety related will require the vendor to be on the Approved Supplier List prior to being awarded a contract. Standards to qualify for the Approved Supplier List include submitting approved quality assurance plans, undergoing background checks, drug screening and code of ethics verification, and undergoing regular Nuclear Procurement Issues Committee (NUPIC) audits. NUPIC is an evaluation program of suppliers furnishing safety related items and services to the nuclear industry. NUPIC Joint Audits and Surveys are performed utilizing an industry-wide standardized approach through the cooperative effort of the NUPIC members.

Vendors can request further information during the bidding process. PEF assembles all requests and completes an addendum to the RFP that each vendor will receive at the same time. This ensures that all vendors have access to the same information and each bid can be evaluated fairly.

For contracts that are non-nuclear related, PEF management will select persons knowledgeable of the work scope to develop criteria to assess incoming bids. Any contract that is nuclear related requires the technical evaluation be performed by the designated representative, and the commercial evaluation will be performed by the contract facilitator, Supply Chain Department, or the Nuclear Engineering Service Department. These evaluations

[21] PEF Response to FPSC Data Request 1-34a, Bates 000215.
[22] Maximum levels of authorization to acquire materials or supplies that are to be covered by a signed Purchase Order.
[23] Maximum levels of authorization to acquire services that are to be covered by a signed Contract.

are combined, and a winning bidder is selected by mutual agreement of the designated representative and the contract facilitator or Supply Chain Department.

## What is the company's current process and controls for single and sole source selection?

PEF stated that while the preferred method of developing a new contract or authorizing additional work on an existing contract is through the competitive bidding process, there are times when this practice is either impractical or unnecessary. PEF's policies and procedures that cover non-nuclear projects,[24] state an RFP is not required for work that is priced less than $100,000. If the work is greater than $100,000, there are two methods for awarding a contract without the RFP process: single source and sole source contracts. This policy does not include any nuclear safety related items which operate under the Nuclear Generation Group policy,[25] and also identifies $100,000 as the amount requiring an RFP or single/sole source justification.

A single source contract is awarded to a specific vendor without using the RFP process, even though there are other qualified contractors available. The company states this type of contract is normally used in two circumstances; the work is a continuation of previously performed work, or there is an emergency and there is not time to issue an RFP.

A sole source contract is used when there is only one qualified supplier to do the job. PEF states this is typically this case when dealing with the Original Equipment Manufacturer (OEM). Since these vendors are the original manufacturer of the equipment they normally have the best technical ability to complete the needed work. This advantage may result in at least a competitive price, especially if a warranty was negotiated in the original contract. PEF policies and procedures[26] currently identify six acceptable sole source justifications including:

OEM Exclusive Rights
OEM Exclusive Design
Equipment Warranty/Compatibility
Parts Warranty/Compatibility
Accessory Warranty/Compatibility
Unique Technical Service

Regardless of whether a single or sole source is used, the designated representative must justify the reason for the selection on the contract requisition, and it must be approved by the appropriate level of management. FPSC audit staff notes that while PEF policies and procedures detail what requirements are necessary to implement a sole source contract, the procedures do not indicate any specific documentation requirements other than that a written justification exist within the contract file. FPSC audit staff recommends PEF consider updating its policies to define the information to be included in a single/sole source justification. This information may

[24] PEF Response to FPSC Data Request 1-34a.
[25] PEF Response to FPSC Data Request 1-6a.
[26] PEF Response to FPSC Data Request 1-34a.

include how the selection benefits PEF regarding costs, schedule and technical ability along with the name and title of the authorizing manager.

## What are the current controls for contractor management?

**Levy Nuclear Project**

Oversight of contractors working on the Levy project is performed by continuous engagement between PEF and its vendors, both on the Levy site and the vendor's facilities. There is at minimum weekly phone calls with the Joint Venture Team (Sargent & Lundy, Worley Parsons, and CH2MHILL) and the Owner's Engineer Team (Sargent & Lundy and Worley Parsons) to review work scopes supporting COLA and SCA development/review.

To facilitate contractor oversight, large contracted scopes are divided into individual tasks which may be more closely managed and monitored. Monthly reports provide information relative to scope, budget, invoicing, schedule performance, and cash flow projections. Regular communication with each contractor ensures that the work is progressing as planned and any issues are addressed early on. These communications include periodic meetings, conference calls, and status reports.

As previously noted, all vendors completing nuclear safety work for the Levy New Units must qualify and be included on PEF's Approved Supplier List. Once on the approved list, the vendor must successfully complete evaluations by PEF auditors, Quality Assurance and/or NUPIC.

Due to the size and duration of the Levy Engineering, Procurement, and Construction contract, PEF is establishing policies and procedures that incorporate the specific needs of this project. PEF developed its Levy *EPC Implementing Procedure Development Plan* that lists policies and procedures that are to be developed specifically for the Levy project. These procedures will provide project personnel with details needed to manage the rules and requirements contained in the contract. [redacted]

**Crystal River 3 Extended Power Uprate**

PEF has elected to self-manage the Uprate project rather than enter into an agreement with an outside vendor for an Engineering, Procurement and Construction contract. FPSC audit

[27] PEF Response to FPSC Data Request 1-34b.

staff notes that either method is considered an acceptable business practice within industry standards, as long as PEF employs the proper personnel that are capable of completing the work.

PEF states that its decision to self-manage the Uprate project was based on several factors. First, PEF states it employs a team of employees and managers with the necessary project management experience. Progress Energy-Carolina recently self-managed the Uprate for its Brunswick Plant, and expects lessons learned from that project to improve the process employed at Crystal River 3. In addition, PEF states many of its employees and managers have experience working on large projects at other nuclear facilities. PEF states these factors provide them with the skill and knowledge necessary to successfully manage its Uprate project.

The company expanded the scope of the *Vendor Quality Program for Critical Non-Safety Equipment*[28] to accommodate increased vendor oversight on the Uprate project. The *Vendor Oversight Manual* for the Crystal River 3 Uprate identifies critical parameters that PEF will want to inspect, witness, and/or verify that the task has taken place. The identified milestones may include a vendor oversight trip where a qualified engineer or subject matter expert inspects completed work to verify compliance with technical requirements. PEF states that this course of inspection and verification is applying near nuclear-grade inspections to the non-nuclear critical components of the Uprate. During each inspection, an oversight checklist is completed for each vendor, and any identified issues are documented in the report.

PEF vendor oversight includes progress reports that provide production status and earned value for each task. These reports provide information relative to scope, budget, invoicing, schedule performance, and cash flow projections. The frequency of these reports will increase as the materials arrive on-site and the outage date approaches. The company states that it hosts regular meetings with vendors to ensure that the contract work is progressing as planned and any issues are identified and addressed early.

The designated representative is assigned by PEF management to administer the contract terms and conditions, and be the first-line contact with the contractor. The designated representative is responsible for initiating contract requisition documents and verifying completion and quality of the work being performed under a contract. *Oversight Responsibility Matrix for Contracts*[29] identify the duties of the designated representative includes, but is not limited to:

Administering the contract
Interfacing with contract personnel
Coordinating the processing of contract personnel for unescorted access
Initiating contractual changes as needed
Accepting or rejecting work performed
Controlling costs within budget limits
Transmitting applicable quality assurance records for permanent storage.

[28] PEF Response to FPSC Data Request 1-6a.
[29] PEF Response to FPSC Data Request 1-20 p. 22.

## What are the current controls for managing contractor costs and performance?

Once PEF completes its selection and negotiation, its master contracts contain several provisions that either will protect PEF outright, or share the risk with the vendor completing the work. The company states it protects its interests when defining the scope of work within the contract. The terms and conditions of the contract form a key protection against substandard contractor performance and cost escalation. PEF includes standard provisions within its contracts that cover contingencies such as indemnity, work stoppage, cancellation with or without cause, and dispute resolution. PEF also includes provisions that authorize a right to audit and inspect of work at its discretion.

Another key protection to PEF is the selection of the type of payment. There are three primary types of payment that allow PEF to monitor the progress of the work and verify the work quality as it is being completed. The time and materials pricing method is open-ended, and may require more oversight from the company to ensure the hours worked and materials purchased were all necessary to the completion of the project. It is because of this uncertainty that a time and materials contract will frequently be written to include target pricing as additional protection from cost escalation.

Target pricing allows the company to have flexibility to pay a vendor strictly for the work and materials used, but also include a target price for the vendor to seek to maintain. Target pricing can also contain rewards and penalties that further incent the vendor to stay within the agreed upon pricing. For instance, a vendor coming in under budget may be eligible to share a percentage of the unused portion with PEF. The same is true for going over budget. The vendor may have to share a portion of the costs if it is not able to stay within the predefined amount.

The third form of payment is fixed or firm price. This form of payment offers PEF the most protection due to setting a price that will be paid and what must be done for payment. The vendor submits an invoice, usually upon reaching a predetermined milestone, and PEF has the opportunity to verify the completion and quality of work. This payment offers protection to both PEF and the vendor. The vendor knows when it will receive payments, and PEF knows how much will be paid for the work.

PEF states it also protects its interests during the project by evaluating the credit stability of its vendors. Corporate Treasury and Enterprise Risk Management may evaluate prospective vendors at the request of the contracting department. Evaluations are done at least on an annual basis, with interim evaluations being performed if there is reason to believe that a vendor's financial condition may have changed. PEF monitors markets, industries, news wires, and peer groups and reviews the information to determine if an interim review is necessary. Depending on its evaluation of a vendor, PEF may limit its exposure by using potential liability levels, warranty periods, length of contract and total contract value limits.

[redacted]

FPSC audit staff reviewed PEF contracts provided in response to data requests and verified these provisions are routinely included in its contracts. [redacted]

## What contracts are in place for the Levy Project?

PEF initiated 36 contracts greater than $200,000 relevant to the Levy Project. These contracts are estimated to cost approximately $7.84 billion at the completion of the project. As discussed below, a scope of work can be issued to a contractor through two methods; competitive bidding or a single/sole source. The following section discusses each method, and highlights its impact on the total costs of the Levy project.

**Competitively Bid Contracts**

**EXHIBIT 14** identifies contracts greater than $1 million for the Levy Project that were awarded using the competitive bidding process. As the exhibit shows, the original contract amount does not always equal the final price. Once the contract is executed, additional work may be identified that was not contemplated in the original scope, thus resulting in a final price exceeding original estimates. The company states that it typically includes provisions in its contracts for invoicing additional approved expenses. If the company identifies a necessary change to the scope, an amendment to the contract can be negotiated with the vendor.

The competitively bid contracts greater than $1 million are currently estimated to cost $50,992,465 at completion, and represent approximately one percent of the costs for the Levy Project. FPSC audit staff notes that the estimated final contract amounts for these seven contracts exceed the original amount by $34,731,478. According to PEF, these increases are not the result of errors or inefficiency by the vendor or company. Rather, they are the result of PEF identifying additions to the scope. The company has documented these additions as directed by its policies and procedures.

*Joint Venture Team Contract*

As discussed earlier, a master contract is a source document that authorizes a vendor to perform a single task, and/or authorizes future work that has yet to be identified. The work will be assigned to the vendor through a work authorization as an extension of the contract. As shown in Exhibit 14, the JVT contract has four work authorizations during 2008, each over $1 million. The master contract was competitively bid for work in both North Carolina and Florida.

Since Progress Energy knew the location of the planned construction on its Harris site in North Carolina, it was able to secure bids for COLA preparation for that location. PEF's Florida location was still in the selection process at the time, so the company requested bids for its Florida greenfield site based on its Harris site. PEF stated it was aware the geographical location of Florida would result in higher costs; however, it felt the Florida site costs would be proportionately higher for all bidders. PEF determined awarding both sites, even on an unknown

greenfield site, was cost effective compared to waiting for a known location in Florida and signing separate contracts for each site. The use of multiple awards is a negotiation technique used by PEF to secure the best price possible from the winning bidder.

| Levy Units 1 & 2 Project<br>Current Competitively Bid Contracts Greater Than $1 Million | | | | |
|---|---|---|---|---|
| **Contractor/ Contract Number** | **Work** | **Original Contract Amount** | **Estimated Final Amount** | **Type Payment** |
| Joint Venture Team<br>00255934-WA02 | COLA Preparation | [redacted] | [redacted] | [redacted] |
| Joint Venture Team<br>00255934-WA05 | Support to respond to NRC requests for Addt'l information | [redacted] | [redacted] | [redacted] |
| Joint Venture Team<br>00255934-WA03 | SCA support for Levy Nuclear Plant Site | [redacted] | [redacted] | [redacted] |
| Joint Venture Team<br>00255934-WA01 | COLA Preparation on tasks to support both Levy and Harris | [redacted] | [redacted] | [redacted] |
| Patrick Energy Services<br>00409194-WA01 to WA06 | Owners Engineering Services | [redacted] | [redacted] | [redacted] |
| Power Engineers Inc<br>00262141-WA03<br>Amd. 1,2, & 5 | Line and Substation Design Study Support | [redacted] | [redacted] | [redacted] |
| Golder Associates<br>00080678-WA129 | Levy Transmission Route Study | [redacted] | [redacted] | [redacted] |
| **TOTAL** | | $16,260,987 | $50,989,465 | |

**EXHIBIT 14** *Source: PEF 2008 Filing Docket 090009: Schedule AE-8*

The four work authorizations awarded to the JVT for the Levy site separate the project into different portions; three are specific to the Levy site and one is joint work to share costs with the Harris site, preventing duplication of work during preparation of the shared portions of the two COLAs. Several chapters of the Combined Operating License application are specific only to the selected technology and can be reused between the two sites. The work would have to be repeated for each vendor submitting work for the Combined Operating License. The three work authorizations specific to the Levy project include: COLA preparation, support for responding to NRC requests for additional information, and Levy Site Certification Application support.

FPSC audit staff observed that the four Work Authorizations currently active with the JVT are estimated to be completed for costs well above the original amount. PEF did foresee increased costs for the original Levy work once the Florida site was selected, and all three site specific JVT contracts have grown substantially.

The second work authorization (255934-WA02) currently shows the greatest difference between original cost and amount expended for the COLA development. This work authorization was originally estimated to be [redacted] for [redacted] to complete pre-work and preparation of the COLA. At the time of this review, 79 additional tasks had been identified and added to WA-02, including environmental studies, responding to requests for additional information from the NRC, and additional fieldwork including the Levy grout test program. The costs of this work authorization surpassed [redacted] as of 2008, and are expected to increase to [redacted] by completion. According to the company, the increases for these work authorizations are not the result of errors or inefficiency by the JVT or the company. Rather, the additions are a result of the additional information needed to for the regulatory approval process.

During its review of the additional costs, FPSC audit staff identified 12 of the 79 additional tasks that were attributed to the geographical difference between the Harris site in North Carolina, and the Levy site in Florida. Reasons for the additional scope of work include "differences in conditions in the Levy County site and those assumed in the original proposal," and "Original JV proposal assumed Florida site to be similar to the Carolina site, sites cannot be replicated."[30] These 12 changes have increased costs approximately [redacted] to date.

The JVT work authorization for Site Certification Application support (255934-WA03) has grown from its estimated cost of [redacted] to [redacted] This represents an estimated increase of approximately 690 percent. Once the COLA was submitted, PEF issued a new work authorization to authorize support to respond to NRC requests for further information (255934-WA05). This work authorization has also grown from its original price of [redacted] to an estimated completion cost of [redacted]. Again, PEF states costs incurred have been in response to additional scope for the application process, and not due to error or inefficiency on behalf of PEF or the JVT.

***Additional Contracts Over $1 Million***

Power Engineers, contract 262141-WA03 (Amendments 1, 2, and 5) is also a contract that has exceeded its estimated original price. This contract is for line and substation design study support, and was originally signed for [redacted] PEF has expanded the original scope, and it is now estimated to be [redacted] at its completion. According to PEF, the original contract was for the preliminary line and substation design support study. The amendments were added to complete additional studies including; preliminary line and substation design, providing conceptual substation engineering and line route study services, and substation design and engineering for Levy Transmission. Amendments three and four were not listed since they do not pertain to the Levy Project.

Two additional transmission contracts in 2008 were competitively bid; Golder Associates and Patrick Energy Services. Golder Associates contract is to perform the route selection study, and Patrick Energy Services is to provide Owners Engineering services for the transmission line project. As with the other companies shown, PEF states that these contracts also required additional work added to its scope or additional funding to continued services that increased the costs beyond the original estimates.

[30] PEF Response to FPSC Data Request Levy 6-1, Bates number 000002.

*Contracts Under $1 Million*

PEF has two contracts between $200,000 and $1,000,000 for the Levy project that were competitively bid. These contracts were issued to Burns & Roe and Sargent & Lundy, and have a combined estimated value of approximately $1.21 million.

## EPC Contract

**EXHIBIT 15** details the EPC contract, and the pre-work completed as negotiations were completed. There were five work authorizations issued supporting the EPC contract; four to Shaw, Stone & Webster, and one to Westinghouse. PEF states these work authorizations were completed within the scope of the EPC contract as negotiations were being completed. While listed separately, the costs associated with the work authorizations are included in the final contract price of $7.65 billion.

| Levy Units 1 & 2 Project EPC Contract | | | |
|---|---|---|---|
| **Contractor/ Contract Number** | **Work** | **Contract Amount** | **Type Payment** |
| Westinghouse (EPC Contract) 414310 | Contract for delivery and construction of the AP1000 Plant | [redacted] | [redacted] |
| *Westinghouse 3382-00148* | *Supply chain, Q. A., project mgt. and engineering services to support the Letter of Intent* | [redacted] | [redacted] |
| *Shaw, Stone & Webster 00300968-00009* | *Support additional. tasks for Units 1 & 2 COD Sched.* | [redacted] | [redacted] |
| *Shaw, Stone & Webster 00300968-00007* | *Execute limited authorization described in letter of intent* | [redacted] | [redacted] |
| *Shaw, Stone & Webster 00300968-00006* | *Support of SCA and LWA submittals* | [redacted] | [redacted] |
| *Shaw, Stone & Webster 00300968-00008* | *Support Units 1 & 2 COD Schedules* | [redacted] | [redacted] |
| **TOTAL** | | $7,650,000,000 | |

*(*)—The costs associated with these contracts were incorporated into the total EPC Contract price when it was initiated on December 31, 2008.*

**EXHIBIT 15** ***Source: PEF Filing Docket 090009: Schedule AE-8***

Single/Sole Source Contracts

PEF reported several contracts initiated using the company's single/sole source process. **EXHIBIT 16** lists the current single/sole source Levy contracts and work authorizations that are greater than $1 million.

| Levy Units 1 & 2 Project<br>Current Sole Source Contracts Greater Than $1 Million | | | | |
|---|---|---|---|---|
| **Contractor/ Contract Number** | **Work** | **Original Contract Amount** | **Estimated Final Amount** | **Type Payment** |
| Westinghouse 00003382-00128 | Levy price finalization support | [redacted] | [redacted] | [redacted] |
| Shaw, Stone & Webster 00300968-00004 | Levy price finalization support | [redacted] | [redacted] | [redacted] |
| Shaw, Stone & Webster 00300968-00002 | Conceptual design and site characterization | [redacted] | [redacted] | [redacted] |
| NuStart Energy Development N/A Annual Membership | Membership agreement for preparation of COLA | [redacted] | [redacted] | [redacted] |
| Golder Associates 00080678-00111 | Transmission corridor studies | [redacted] | [redacted] | [redacted] |
| **TOTAL** | | $12,081,939 | $12,699,187 | |

EXHIBIT 16 *Source: PEF Filing Docket 090009: Schedule AE-8*

*Contracts Over $1 Million*

In 2008, PEF's only new sole source work completed was in support of the EPC contract. PEF issued three work authorizations, one to Westinghouse and two to Shaw, Stone & Webster. The work authorizations were issued as sole source due to Westinghouse being the sole vendor of the selected reactor technology, and to Shaw, Stone & Webster as the contracted engineering partner. According to PEF, the scopes of these work authorizations include activities necessary to determine and document detailed costs associated with the Levy Nuclear Project.

The membership agreement listed for NuStart Energy is an annual fee for members of the organization. The members have combined resources for preparation of the COLA. The membership costs may increase throughout the year as additional expenses shared among the members become known, such as legal fees.

The contract awarded in 2007 to Golder Associates was based on prior work completed on the PEF transmission system. PEF stated the work that Golder Associates had completed up to that point could not be assumed by another contractor. If the contract had been competitively bid, another vendor would have to duplicate the work Golder Associates had already completed, at additional expense. This contract currently exceeds the original amount by [redacted]

*Contracts Under $1 Million*

PEF issued one work authorization and four amendments with activity in 2008 that were between $200,000 and $1,000,000, but were sole sourced and required justification. FPSC audit staff reviewed these contracts and verified that a sole source justification was completed by the company. The work authorization issued to Shaw, Stone & Webster is based on an established master contract relationship in support of the Levy Project. Three amendments issued to Energy Services represent additional scope to provide supervision and labor for line design. The fourth amendment, issued to Power Advocate Inc, is for contract strategy development and materials market assessment.

*Real Estate Contracts*

**Exhibit 17** lists contracts for the purchase of land that will be used for the Levy project, and the transmission line and sub-station construction. PEF employed an outside realtor, who was paid on a tiered commission, to acquire the land without the seller knowing the buyer's identity. PEF states it still sought to achieve the best possible price for the land; there was no alternative to allow use of competitive bidding.

**Levy Units 1 & 2 Project**
**Current Real Estate Contracts**

| Contractor | Original Contract Amount | Estimated Final Amount | RFP or Single/Sole Source | Type Payment |
|---|---|---|---|---|
| Rayonier Forest Resources N/A | [redacted] | [redacted] | N/A - Purchase of property | [redacted] |
| Daryl M. Carter PEF2008-10-36, PEF2009-3-39 | [redacted] | [redacted] | N/A - Purchase of property | [redacted] |
| The Duncan Companies 293651 | [redacted] | [redacted] | Approved Nominee Agreement | [redacted] |
| Roger & Aare Pavlik PEF2008-10-128, PEF2008-12-121 | [redacted] | [redacted] | N/A - Purchase of property | [redacted] |
| Murray Eugene Bertine & Evelyn Bertine Bailey PEF2008-12-163 | [redacted] | [redacted] | N/A - Purchase of property | [redacted] |
| Russell & Cynthia Varney PEF2008-10-129 PEF2008-12-122 | [redacted] | [redacted] | N/A - Purchase of property | [redacted] |
| **TOTAL** | $57,813,245 | $68,493,933 | | |

**EXHIBIT 17** *Source: PEF Filing Docket 090009: Schedules T-8B and AE-8*

## What vendor management issues have arisen for the Levy Project?

PEF's Quality Assurance Program conducted quality assurance surveillance on Paul C. Rizzo and Associates, a sub-contractor through Sargent & Lundy, which started December 1, 2008. [redacted] A verbal Stop Work Order was given at that time with a formal, written order the next day.

[redacted] On February 11, 2009, PEF verified that the corrective actions had been completed and the remaining elements of the stop work order were lifted, allowing Paul C. Rizzo and Associates to return to unrestricted work activities.

## What current contracts are in place for the Crystal River 3 Extended Power Uprate?

PEF initiated 27 contracts greater than $200,000 relevant to the Crystal River 3 Extended Power Uprate. These contracts are estimated to cost approximately $174.38 million at the completion of the project. As previously discussed, a scope of work can be issued to a contractor through two methods; competitive bidding or a single/sole source. The following section discusses each method, and highlights its impact on the total costs of the Crystal River 3 Extended Power Uprate.

**Competitively Bid Contracts**

**EXHIBIT 18** identifies the contracts and work authorizations for the Crystal River 3 Uprate project amounts greater than $1 million using an RFP process. The competitively bid contracts over $1 million are estimated to cost $125,291,817 and represent approximately 67 percent of the costs for all contracts included in the Crystal River 3 Uprate.

***Contracts Over $1 Million***

As shown in the exhibit, the original contract amount does not always equal the final price. The contract that currently shows the greatest difference between the original contract price and amount expended is AREVA's Master Contract 101659, Work Authorization 93. This Work Authorization allows the vendor to provide engineering services for Crystal River 3 Secondary Systems Uprate in support of the Uprate project. While this work authorization is fixed price, the company has documented multiple change orders that extend the original scope of work.

Contract activity in 2008 included four additional items that were competitively bid. PEF expanded the scope of the AREVA Work Authorization 93 (Amendment 7) to now include the development of Engineering Change Documents to replace the Main Turbine Bypass Valves at

the Crystal River 3 unit. This amendment is fixed price with payments to be made upon completion of defined milestones.

PEF also issued two work authorizations on existing contracts. Mesa Associates (221186-WA24) for discharge canal cooling tower civil engineering. This work authorization is based on time and materials with a target price. MHF Solutions, Inc. (47083-WA08) was awarded a fixed price work authorization for large component radioactive waste disposal. PEF added one new contract in 2008 to Barnhart Crane and Rigging (384426). This fixed price contract is for the heavy hauling requirements during the Crystal River 3 Uprate.

| Crystal River 3 Uprate Project<br>Current Competitively Bid Contracts Greater Than $1 Million | | | | |
|---|---|---|---|---|
| **Contractor/ Contract Number** | **Work** | **Original Contract Amount** | **Estimated Final Amount** | **Type Payment** |
| Siemens<br>145569-WA50 | Turbine retrofit, all equipment & installation | [redacted] | [redacted] | [redacted] |
| AREVA –NP<br>101659-WA93 | Uprate balance of plant | [redacted] | [redacted] | [redacted] |
| AREVA-NP<br>101659-WA93, Amd 7 | Turbine Bypass Valves | [redacted] | [redacted] | [redacted] |
| Thermal Engineering<br>342253 | 4 Moisture Separator Reheaters | [redacted] | [redacted] | [redacted] |
| Yuba Heat Transfer<br>355217 | Feed water heater | [redacted] | [redacted] | [redacted] |
| Mesa Associates Inc.<br>221186-WA24 | Civil Engineering POD Cooling Tower | [redacted] | [redacted] | [redacted] |
| Barnhart Crane and Rigging<br>384426 | Uprate heavy hauling. | [redacted] | [redacted] | [redacted] |
| MHF Logistical Solutions Inc<br>47083-WA08 | Large component radioactive waste disposal | [redacted] | [redacted] | [redacted] |
| **TOTAL** | | $124,016,939 | $125,291,817 | |

EXHIBIT 18 *Source: PEF Filing Docket 090009: Schedule AE-8*

*Contracts Under $1 Million*

PEF has six contracts and work authorizations that are between $200,000 and $1,000,000 that were competitively bid, and will play a supporting role in the Crystal River 3 Extended Power Uprate. The combined total of these contracts are estimated to be $3,363,262 upon completion.

Sole/Single Source Contracts

**EXHIBIT 19** lists PEF's single/sole source contracts greater than $1,000,000. The listed single/sole source contracts are estimated to cost $41,971,527 at the completion, and represent approximately 33 percent of the costs included in the Crystal River 3 Extended Power Uprate.

| Crystal River 3 Uprate Project<br>Current Sole Source Contracts Greater Than $1 Million | | | | |
|---|---|---|---|---|
| **Contractor/ Contract Number** | **Work** | **Original Contract Amount** | **Estimated Final Amount** | **Type Payment** |
| AREVA –NP<br>101659-WA84 | NSSS and fuel engineering, LAR support | [redacted] | [redacted] | [redacted] |
| AREVA –NP<br>101659-WA61 | Flow meter engineering and design | [redacted] | [redacted] | [redacted] |
| Atlantic Group<br>3714 Amd 69-74,<br>(72 & 74 belong to PEF) | CR3 R16 Uprate labor and support | [redacted] | [redacted] | [redacted] |
| Atlantic Group<br>3714 Amd 53 & 57 | Flow meter installation | [redacted] | [redacted] | [redacted] |
| NuFlo Technologies Sales<br>44867 Amd 07 | Purchase and Installation of leading edge flow meter to recapture measurement uncertainty | [redacted] | [redacted] | [redacted] |
| **TOTAL** | | $40,229,547 | $41,971,527 | |

**EXHIBIT 19** *Source: PEF Filing Docket 090009: Schedules T-8 and AE-8*

*Contracts Over $1 Million*

While there were no new contracts in 2008, the company did expand the scope of its existing contract with AREVA, adding two additional work authorizations. Work Authorization 61 is for the Engineering Design and Licensing for Measurement Recapture, and Work Authorization 84 is for the Uprate Nuclear Steam Supply System Engineering, Fuel Engineering, and Support of the License Amendment Request. Both of these work authorizations were issued to AREVA based on its status as the original equipment manufacturer.

The two Atlantic Group work authorizations listed are part of an existing fleet contract with PEF. This Fleet Contract was initiated through the competitive bidding process; however the winning bidder has a long standing contract to provide services at a pre-negotiated rate. In the case of Atlantic Group, this contract has a [redacted] Atlantic Group is supplying the Uprate project implementation and labor support for many of the projects scheduled for completion during the fall 2009 scheduled outage.

*Contracts Under $1 Million*

PEF has nine contracts between $200,000 and $1,000,000 relevant to the Crystal River 3 Extended Power Uprate. These contracts include legal services in support of the uprate, additional scope of work assigned to AREVA as the Original Equipment Manufacturer, and staff augmentation based on an existing fleet contract. The nine contracts are estimated to total approximately $4,925,882 at the completion of the uprate.

## What vendor management issues have arisen for the Crystal River 3 Extended Power Uprate Project?

PEF states there have been no major disciplinary actions required for vendors working on the Uprate project. The company states it has taken minor corrective action for performance issues through the course of normal daily business, however; actions have been limited to contract status meetings, face-to-face management meetings and additional status reports.

The company states that it is monitoring the industry activities associated with the low pressure turbine failure at the D.C. Cook nuclear plant. Currently, PEF is planning to use a rotor of similar design in its Phase 2 replacement. The company states that based on the results of the technical review of the D.C Cook events, the company will determine how to proceed with replacing these components at the Crystal River Unit.

# 5.0 Appendix

## Acronyms and Abbreviations

| | |
|---|---|
| ANT | Advanced Nuclear Technology |
| APOG | AP-1000 Owners Group |
| COLA | Combined Operating License Application |
| Commission | Florida Public Service Commission |
| EPC | Engineering, Procurement, and Construction |
| EPPI | EPU Project Instructions |
| EPU | Extended Power Uprate (or Uprate) |
| FPL | Florida Power & Light Company |
| KPI | Key Performance Indicators |
| LAR | License Amendment Requests |
| NAP | Nuclear Administrative Procedure |
| NNP | New Nuclear Project |
| NPP | Nuclear Power Plants |
| NRC | Nuclear Regulatory Commission |
| NUPIC | Nuclear Procurement Issues Committee |
| OEM | Original Equipment Manufacture |
| QA | Quality Assurance |
| QC | Quality Control |
| RFP | Request for Proposal |
| SCA | Site Certification Application |
| Westinghouse | Westinghouse Energy Corporation |