

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

J U N E 2 0 1 4

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

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**BY AUTHORITY OF
THE STATE OF FLORIDA
PUBLIC SERVICE COMMISSION
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1.0 EXECUTIVE SUMMARY

1.1 AT A GLANCE

NEW NUCLEAR CONSTRUCTION - TURKEY POINT 6&7

- ◆ Project cost estimate range is \$12.62 billion to \$18.42 billion; lower than 2013.
- ◆ State site certification approved by the Siting Board in May 2014.
- ◆ NRC will issue a revised COLA Review Schedule later this year.
- ◆ Construction contract(s) will not be signed in 2014.
- ◆ FPL believes that COLA approval is delayed until at least September 2017.
- ◆ New Nuclear Plant moved to Nuclear Division; reports to the Chief Nuclear Officer.
- ◆ FPL analyses found the project feasible in seven of 14 scenarios, within the non-binding capital cost range in six others and non-economic in one.

EXTENDED POWER UPRATE PROJECT (EPU)

- ◆ The project has been successfully completed and closed out.
- ◆ The current project cost recovery request is the last; no future recovery requests.
- ◆ 512 megawatts (MWe) predicted in 2013; 522 MWe realized for FPL customers.
- ◆ All warranty claims have been resolved.

1.2 AUDIT EXECUTION

1.2.1 PURPOSE AND OBJECTIVE

The Office of Auditing and Performance Analysis conducted its seventh annual audit of nuclear project internal controls and management oversight for Florida Power & Light Company (FPL or the company). This review examined the adequacy of FPL internal project management controls for New Nuclear Project (NNP) and Extended Power Uprate (EPU) organizations.

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

Commission audit staff published previous reports in 2008 through 2013, each entitled *Review of Florida Power & Light's Project Management Internal Controls for Nuclear Plant Uprate and Construction Projects*. These previous reports are available on the FPSC website.

1.2.2 SCOPE

The period of this review is January 2013 to May 2014. Staff examined the adequacy of FPL project management and internal controls for uprate and new nuclear construction projects. The internal controls assessed were related to the following key areas of project activity:

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

Comprehensive controls are a must for successful project management. However, even good controls are ineffective if not emphasized by management and embraced universally in an organization. Proper internal controls minimize risk, enhance its mitigation and management, and aid efficient, reasoned decision making.

Risk must be timely and accurately identified, with sufficient safeguards created and in place to prevent, mitigate, or eliminate them. Prudent decision making results from well-defined processes addressing identified risks, balancing project and company needs against capabilities. Effective communication, adherence to clear procedures, and vigilant oversight, combined with auditing and quality assurance, are essential to ensure prudent project decisions.

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

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

When looking at operational effectiveness and efficiency, reliability of financial reporting, and compliance with applicable laws and regulations, all five components must be present and functioning in concert to conclude that internal controls are effective. This report will document the status of each of these five components.

1.2.3 METHODOLOGY

Initial planning, research, and data collection occurred from December 2013 through January 2014. Staff conducted interviews with Turkey Point Unit 6 and Unit 7 (PTN 6&7) and EPU management in April 2014.

Staff conducted additional data collection and analysis from January to May 2014. Audit staff also reviewed testimony, discovery, and other filings in this and related dockets.

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

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

1.3 OVERVIEW

1.3.1 TURKEY POINT 6&7 NEW NUCLEAR PROJECT

FPL continues pursuing its Combined License Application (COLA) with the Nuclear Regulatory Commission (NRC) and, upon approval, an option to build two new AP1000 nuclear reactors, designated as Turkey Point Unit 6 and Turkey Point Unit 7. FPL describes 2013 as resulting in slower-than-anticipated progress in licensing but with continued forward momentum. The company characterized its planning and preparation processes as deliberate and stepwise project management.

The project critical path remains obtaining required licenses and approvals necessary to construct and operate Turkey Point 6&7. FPL anticipates that the NRC will release a revised COLA review schedule later this year. The company intends to develop a new project timeline and cost estimate range after receiving the revised NRC schedule. FPL concedes that the NRC revised review schedule will lead to project schedule changes but states it cannot currently predict the magnitude or scope of the changes.

Exhibit 1 shows the 2013 project timeline with 2014 updates provided by FPL. The updated information is depicted by gray lines and red arrows. An April 2014 letter from the NRC to FPL prompted the company to conclude that COLA approval will not occur before September 2017 and that COLA-dependent milestones (e.g. construction) are subject to schedule shift. FPL states that the extent of changes will be determined when the company revises the project timeline and cost estimate range later this year.

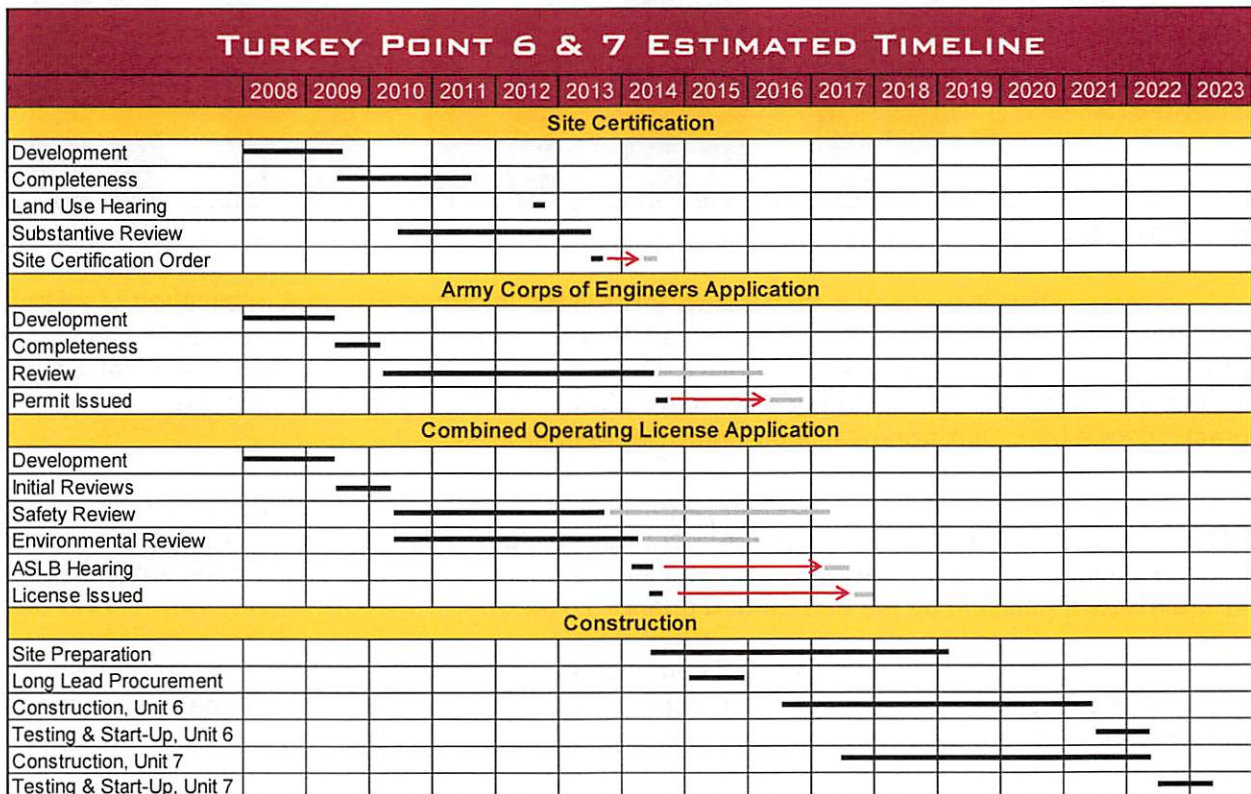


EXHIBIT 1

Source: Document Request 1.13

PROJECT FEASIBILITY - FPL conducted its annual project feasibility analyses using updated assumptions and forecasts. Analyses were conducted based on 40-year and 60-year project life cycles, each with seven fuel and emission cost forecast combinations. Results indicate the project is cost-effective in two of seven scenarios for a 40-year life and in five of seven for a 60-year life.

PROJECT COST ESTIMATE - The project cost range is marginally lower than a year ago, in a range from \$12.62 billion to \$18.42 billion. **Exhibit 2** shows the project cost estimates from 2007 to 2014. FPL project review following NRC release of a revised COLA Review Schedule may change the cost estimate range.

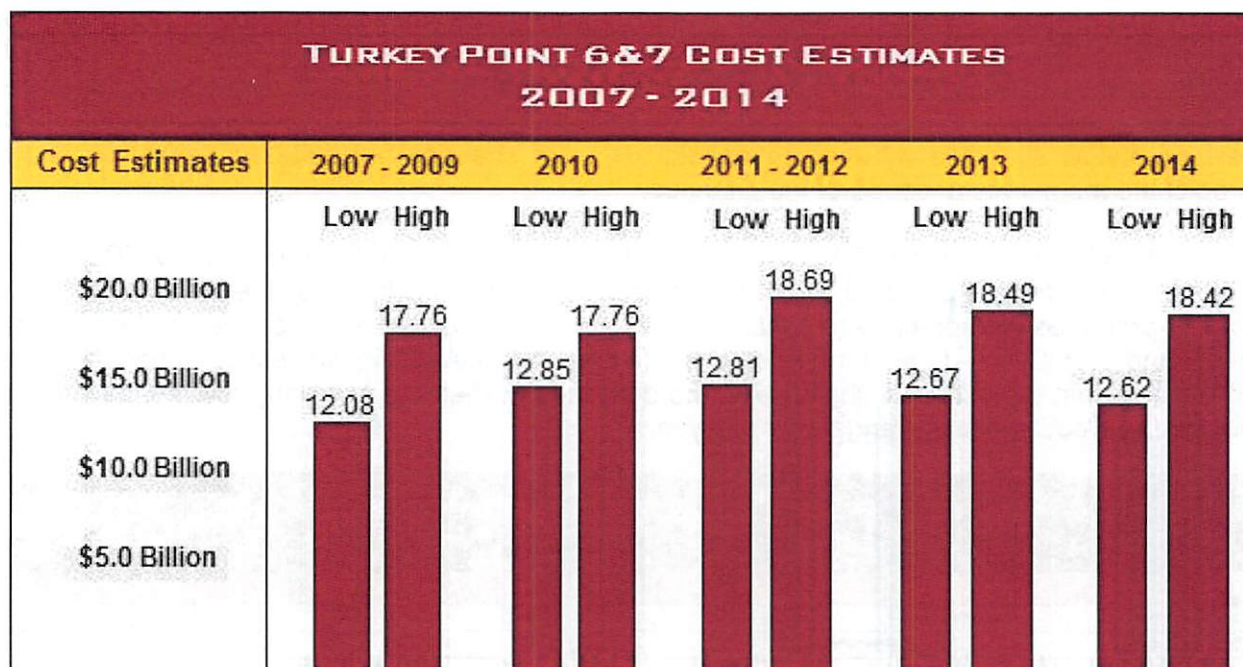


EXHIBIT 2

Source: Document Request 1.1

LICENSING SCHEDULE CHANGES - The NRC informed FPL that publication of a Draft Environmental Impact Statement is estimated to shift from 4Q14 to February 2015, the Final Environmental Impact Statement is now estimated for February 2016, and the Final Safety Evaluation Report is now estimated for until March 2017. As a consequence, the earliest practical date for COLA approval is probably September 2017.

FEDERAL WASTE CONFIDENCE RULE - In 2012, the US Court of Appeals ordered the NRC to readdress temporary storage of spent nuclear fuel. NRC made this an agency priority and in August 2012 halted issuance of new licenses until resolution of waste confidence issues. FPL expects a decision by the end of third quarter 2014.

FEDERAL APPLICATIONS - There were no federal applications, approvals or certifications issued to or submitted by the company in 2013. FPL submitted final responses to the NRC for COLA-related Requests for Additional Information in April.

STATE LEVEL APPLICATIONS - The FPL application to convert the exploratory injection well to an operating well was submitted in January 2013. The application was granted and operational testing was conducted successfully in February 2014. Site Certification was

approved in May 2014, effectively granting approval for the project and 88 miles of associated new transmission lines. The communities of Miami, South Miami, Pinecrest, and Coral Gables initially opposed the project, with FPL and Coral Gables reaching a settlement agreement. Opposition continues and FPL believes the approval will be challenged in district court. FPL also expects the Florida Department of Environmental Protection to issue an Industrial Wastewater permit modification later this year.

CONSTRUCTION CONTRACT STRUCTURE AND TIMING - FPL remains undecided whether a single EPC (engineering, procurement, construction) contract or separate EP and C contracts would be more advantageous. The company believes it best to defer the decision. Pursuit of a contract is currently on hold. Current target dates¹ are likely to change due to a change in the expected COLA approval to at least September 2017.

LONG LEAD FORGING AGREEMENT - FPL extended its long lead forging reservation agreement with Westinghouse, preserving existing terms and conditions. This latest extension expires in October 2016. A previously established no-later-than start date of 2015 for manufacture will shift when FPL reviews and updates the project timeline later this year. Should FPL cancel the project or forfeit the manufacturing slot, part or all of the \$10.8 million reservation fee may be lost.

1.3.2 EXTENDED POWER UPRATE PROJECT

FPL's EPU project was completed in April 2013 with FPL's Turkey Point Unit 4 (PTN-4) being placed in service. The uprated Turkey Point Unit 3 (PTN-3), St. Lucie Unit 1 (PSL-1), and St. Lucie Unit 2 (PSL-2) were completed in 2012. As of December 31, 2013, the EPU organization was demobilized.

Final EPU project costs were \$3.390 billion. According to FPL, there will be no EPU project costs submitted through the NCRC process after this year.

FPL's EPU projects yielded a total increase in capacity for FPL customers of 522 MWe, 31 percent more than the original estimated increase of 399 MWe.² FPL's Saint Lucie units yielded the highest increased capacity, with PSL-2 generating 131 MWe or 49 percent more than 88 MWe reflected in FPL's 2007 need filing. PSL-1 increased capacity from a need of 103 MWe to an actual output of 148 MWe, or 44 percent better than planned. Both Turkey Point Units, PTN-3 and PTN-4, increased capacity by 12 and 21 percent, respectively.

With the exception of one contract, all EPU contracts have been closed. FPL's contract with [REDACTED] was kept open to pursue an outstanding warranty claim regarding the steam generator feedwater pump failure which caused a PTN-3 shut down in April 2013. According to the company, the claim was resolved in June 2014 and the contract will be closed by July 2014.

In a separate warranty issue, FPL also resolved claims with [REDACTED] and [REDACTED] regarding the malfunction of the Main Steam Isolation Valve which caused a PSL-1 shut down in March 2013. In May 2014, FPL reached a settlement with [REDACTED]. In June 2014, FPL reached settlements with [REDACTED] and [REDACTED].

According to FPL, the company also realized total cost savings of approximately \$15.6 million in 2013 through concessions from [REDACTED].

¹ Current target dates are: EPC by September 2014, or an EP by September 2014 with the C portion by April 2015.

² Total increase in capacity is the FPL owner net share minus house loads.

1.4 COMMISSION AUDIT STAFF OBSERVATIONS

1.4.1 TURKEY POINT 6&7

Based upon its information gathering and analysis, Commission audit staff developed the following observations regarding the Turkey Point 6&7 project:

- ◆ Project internal controls, risk evaluation, and management oversight are adequate and responsive to current project requirements.
- ◆ Invoicing policies and procedures are adequate, providing universally understood and followed practices.
- ◆ The revised NRC COLA review schedule will lead to:
 - ◆ A review of project timeline and cost estimate range.
 - ◆ Changes to the project timeline.
 - ◆ Possible changes to the cost estimate range.
 - ◆ Construction contract(s) signed later than 2014.
 - ◆ Long lead forgings begun later than 2015.
 - ◆ COLA approval no earlier than September 2017.
 - ◆ Construction completion shifting from 2021 and 2022 to later years.
 - ◆ Commercial operation shifting from 2022 and 2023 to later years.

1.4.2 EXTENDED POWER UPRATE

Based upon its information gathering and analysis, Commission audit staff developed the following observations regarding the EPU project:

- ◆ Project internal controls, risk evaluation and management oversight were adequate.
- ◆ The four unit uprate project is complete and closed out.
- ◆ Output (522 MWe) exceeded project estimate (399 MWe); a 31 percent increase.
- ◆ In 2013, FPL recovered approximately \$1.5 million from warranty claims.
- ◆ No NCRC claims for recovery will be submitted in 2015 or beyond.

2.0 NEW CONSTRUCTION - TURKEY POINT 6&7

2.1 KEY PROJECT DEVELOPMENTS

Project critical path remains obtaining required licenses and approvals necessary to construct and operate Turkey Point 6&7. A significant subordinate task and near term focus for FPL will be developing an updated project schedule following receipt of a revised NRC COLA review schedule later this year. There were no applications submitted or approvals and/or certifications received in 2013.

2.1.1 SIGNIFICANT EVENTS

FEDERAL - WASTE CONFIDENCE

In 2012, the US Court of Appeals ordered the NRC to submit a new waste confidence rule for temporary storage of spent nuclear fuel within 24 months. The NRC halted issuance of new reactor licenses. FPL believes that the NRC will publish a revised waste confidence rule by the third quarter of 2014. Rule revisions could negatively impact project schedule.

FEDERAL - COLA DELAY

The NRC is currently revising the COLA review schedule and its release is expected by the end of 3Q14. FPL will then conduct a review of the project timeline and cost estimate range. The company has said it is unlikely that remaining project milestones will be attained as earlier projected.³ Audit staff believes the FPL review may be completed in 2014, that project timeline slippage is inevitable, and cost estimate changes are probable.

An April 2014 NRC letter to FPL delayed publication of the Draft Environmental Impact Statement from 4Q14 to February 2015, the Final Environmental Impact Statement to February 2016, and the Final Safety Evaluation Report in March 2017. As a consequence, FPL now believes the earliest practical COLA approval date is September 2017.

FEDERAL - NRC REQUESTS FOR INFORMATION

FPL states that the company continues to provide the NRC responses to Requests for Additional Information (RAI) with many in 2013 relating to the Final Safety Analysis Review (FSAR). An applicant's FSAR provides information to support NRC approval and certification of the standard design.

The NRC questioned data and completeness of Section 2.5⁴ in the FPL FSAR. In response, FPL engaged third party experts to review its data and assist in drafting responses, conducted quality assurance reviews of vendors and subcontractors involved in the work, and implemented corrective actions for RAI processes and procedures.

The company maintained dialog with the NRC through weekly contact with environmental and safety managers, participation in public meetings, and informal drop-in meetings with NRC management. FPL stated that these efforts helped the company to more accurately assess and report seismic and geologic properties of the proposed Unit 6 and Unit 7 site. FPL completed the environmental RAIs in March 2014. Safety RAIs are on track to be completed by the end of June 2014.

³ FPL response to Document Request 1.2

⁴ FSAR Section 2.5 – Geology, Seismology, and Geotechnical Engineering

LAND SWAP

Everglades National Park (ENP) land swap negotiations continue with federal agencies. This is an effort to exchange, at little or no cost, FPL-owned property within the ENP for land on the eastern boundary of ENP to retain a continuous north-south transmission right-of-way in Miami-Dade County. A draft EIS was published in January 2014. Supporting agreements with state and regional agencies are in place, the swap is authorized by federal legislation, and the National Parks Service is conducting a final environmental review.

TRANSMISSION

There are three corridors in play:

- ◆ **East Preferred Corridor** – mostly in existing FPL-owned or public rights of way.
- ◆ **West Preferred Corridor** – connects the Turkey Point site in Miami-Dade to two substations in northern Miami-Dade. This corridor would utilize the land that is subject of the land exchange with the National Park Service.
- ◆ **West Consensus Corridor** – north and south segments of the West Preferred Corridor combined with an alternate corridor proposed by the Miami-Dade Limestone Products Association. It is certified as the primary western corridor in the west.

The West Consensus Corridor avoids some contested areas West Preferred Corridor, alleviates environmental concerns of some parties, and reduces wetland environmental impact. However, it is still dependent on the successful completion of the land exchange and obtaining land rights from federal and state agencies, requiring additional negotiations between FPL and the parties.

The Administrative Law Judge issued an affirmative Recommended Order (RO) supporting the East Preferred and West Consensus corridors, with the West Preferred Corridor as an alternate if FPL cannot obtain the West Consensus Corridor timely or at reasonable cost. The RO also affirmed overhead transmission as most cost-effective and recommended the approval of all variances and transmission easements requested by FPL.

STATE - SITE CERTIFICATION APPLICATION (SCA)

In 2013, the SCA process continued with FPL taking part in Site Certification Hearings which produced an affirmative RO from the Administrative Law Judge supporting action by the Power Plant Siting Board to grant final site certification, including associated transmission lines. The certification was granted in May 2014, approving the project and 88 miles of associated new transmission lines. The communities of Miami, South Miami, Pinecrest and Coral Gables opposed the transmission lines, with FPL and Coral Gables reaching a settlement. FPL believes that those communities still in opposition to the transmission lines are likely to mount a legal challenge in district court.

PROJECT - CONSTRUCTION CONTRACT ON HOLD

FPL has not made a final decision whether an EPC or EP&C contracts would be more advantageous. The company believes the best course of action is to defer pursuit of the construction contract because of recently announced COLA process delays which are likely to push approval to at least September 2017.

The company recognizes that there may be craft availability risks and cost risks associated with delay in signing a construction contract. However, FPL believes this course is most responsive to company and customer interests.

PROJECT - LONG LEAD FORGING RESERVATION

The Forging Reservation Agreement was originally signed by FPL and Westinghouse in 2008, reserving manufacturing capacity for specialized, ultra-heavy forgings. FPL and Westinghouse signed multiple extensions to the original agreement, most recently in early 2014. The latest extension moves the expiration date to October 2016 while preserving the original terms and conditions.

FPL believes that extending the expiration date more than two years meets its interests, reduces near term costs, maintains schedule flexibility, and preserves the critical manufacturing slot. The company continues to acknowledge risk in this agreement. If dissolved, FPL may receive only a partial refund of its reservation fee. If Westinghouse can market the slot, FPL would receive its \$10.8 million deposit less a 15 percent administration fee. If remarketing fails, the entire reservation fee could be forfeited.

PROJECT - JOINT OWNERSHIP DISCUSSIONS

FPL holds annual discussions with prospective joint owner utilities and provides the Commission with required status updates. Participants include the Florida Municipal Energy Association, Florida Municipal Power Agency, Orlando Utilities Commission, JEA, Seminole and Ocala Electric Cooperatives, Lakeland Electric, and Homestead Electric.

In February 2013, FPL and Orlando Utilities Commission signed an option agreement to allow OUC to purchase up to 100 MW of nuclear power from the new Turkey Point units.

2.1.2 TURKEY POINT 6&7 PROJECT COST ESTIMATES

As noted, changes to the project cost estimate are probable after the NRC releases a revised COLA Review Schedule. FPL currently estimates the final project cost in a range from \$12.62 billion to \$18.42 billion. This is lower than the 2013 company estimate of \$12.67 billion to \$18.49 billion.⁵ The difference is attributable to a reduction in the Allowance of Funds Used During Construction (AFUDC) from the 2013 estimate. See **Exhibit 3**.

TURKEY POINT 6&7 2014 TOTAL IN-SERVICE COST ESTIMATE		
Category	Low	High
Site Selection	\$6,118,105	\$6,118,105
Pre-construction	\$225,763,240	\$225,763,240
Construction	\$9,061,332,775	\$13,303,916,932
AFUDC	\$3,325,435,909	\$4,882,430,012
TOTAL	\$12,618,650,028	\$18,418,228,289

EXHIBIT 3 Source: Docket No. 140009-EI, Witness Scroggs, Exhibit SDS-7, Schedule TOR-2, May 2014 Testimony

⁵ Docket No. 130009-EI, TOR-2 (True –Up to Original), pg. 1 of 1, May 1, 2013

2.1.3 FPL PROJECT FEASIBILITY ANALYSES

FPL's 2014 analyses used updated assumptions and forecasts, resulting in 14 different scenarios in two sets of seven, one assuming a 40-year project life expectancy and the other a 60-year life. The company states the project remains cost-effective in seven scenarios, two for a 40-year life cycle and five for a 60-year. Breakeven capital costs fall within the non-binding capital cost range in six others and was not cost-effective in one scenario.

FPL believes that its annual analyses support project continuation. The company states that PTN6&7 remains feasible, viable, and will provide future generation diversification while offering added consumer benefit compared to non-nuclear alternatives.

2.2 PROJECT CONTROLS AND OVERSIGHT

2.2.1 PROJECT CONTROLS

Project controls exist in financial and accounting systems, department procedures, and desktop instructions. In 2013, FPL revised twelve project instructions. Two more are currently under revision and will be completed in 2014. See **Exhibit 4** below.

TURKEY POINT 6&7 REVISED PROJECT INSTRUCTIONS		
Title	Action	Date
Department Training	Revised	02/13
COLA Configuration Control & Responses to Request for Additional Information for Project Applications	Revised	04/13
NNP NRC Correspondence	Revised	05/13
Change Control for COL Application Information	Revised	07/13
Exploratory and Dual Zone Monitoring Well Project Incident Response Instructions	Revised	07/13
Discovery Production Instructions Related to Turkey Point 6&7 Combined License Hearing	Revised	08/13
Project Document Retention and Records Processing	Revised	10/13
Technical Review of Commercial Project Documents	Revised	10/13
NNP Project Correspondence	Revised	10/13
PTN 6&7 Monthly Cost Report Process	Revised	12/13
Preparation, Revision, Review and Approval of New Nuclear Projects Project Instructions	Revised	12/13
NNP PTN COLA Project Management Briefs, Project Memoranda, and COLA Document Reviews	Revised	12/13
Project Schedule Configuration and Control	In Progress	
COLA Review and Acceptance Process	In Progress	

EXHIBIT 4

Source: Document Request 1.24

Staff believes these revisions are responsive to PTN6&7 project maturation and changing project requirements, not corrective actions resulting from deficiencies in project management or controls. No internal audits, quality assurance reviews, or external audits reviewed by staff cited any weaknesses in project instructions.

“White papers” are management tools used by FPL in the PTN6&7 project to record and document key decisions or actions. FPL management believes that white papers are an integral part of project transparency. One white paper, on the topic of policies and procedure adherence, was developed during the period January 2013 to June 2014.

Project controls and processes remain unchanged. For project control these include:

- ◆ Budgeting and reporting
- ◆ Schedule and activity reporting
- ◆ Contract management
- ◆ Internal and external oversight

For internal and/or external oversight:

- ◆ Executive management
- ◆ Subordinate managers
- ◆ FPL subject matter experts (SME) and team members
- ◆ Third party experts
- ◆ Regular updates and reports on risk, cost, and schedule

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

2.2.2 RISK MANAGEMENT REPORTING

FPL risk management efforts include regular meetings and reports designed to identify, characterize, evaluate, and isolate or mitigate PTN6&7 project risk. Weekly small team meetings (e.g. COLA team and Site Certification team) track project activities, facilitate risk identification, discussion, and development of response strategies. More senior management gets involved when risks cannot be mitigated in the small teams, elevating each to an appropriate level for resolution.

Project schedule, progress, and cost metrics are monitored in real time and reported using standard format reports to allow close monitoring of contractor performance. As important stakeholders in risk management, vendors are required to provide weekly agendas and progress reports.

The project team meets monthly to review project schedule, budget, and project issues/risks. Each identified project risk is tracked and reviewed until resolved and closed out on the risk dashboard. A Cost Report meeting also provides an opportunity to scrutinize project cost risks. Project management provides regular project updates to FPL executive management.

More formal risk reporting is focused in the monthly project dashboard and a quarterly risk analysis. The monthly dashboards track major risks and inform the quarterly analysis.

Staff reviewed all 2013 and 2014 dashboard reports to date. These reports provide issue/risk clarity and detail, a probability of occurrence, and analysis of potential impacts, cost, and possible schedule turbulence. Areas assessed are unchanged from 2013:

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

The quarterly risk analysis is a broader project management assessment tool to identify key issues, characterize them, provide trending over time, and track attendant risk. An integral part of this assessment is determining a likelihood of occurrence for each risk (low, medium, or high) and potential negative consequences if it occurs (low, medium, high). For each risk a response is designed, a mitigation owner assigned, strategies developed to manage the risk, and progress tracked until mitigated.

PTN6&7 project leadership also has the option of presenting information to and obtaining the advice of the FPL Risk Committee. No presentations were made to the FPL Risk Committee from January 2013 thru May 2014.

Commission audit staff believes that controls are adequate, sufficiently comprehensive, and responsive to the needs of the project at its current stage. The monthly dashboard and quarterly assessments inform FPL management and executive leadership. As the plan shifts from licensing to construction, however, staff believes a reassessment of content will be required and restructuring may be necessary.

2.2.3 MANAGEMENT OVERSIGHT

The position of Construction Director was added in 2013. It was filled in early 2014 with an experienced manager from the FPL EPU project. There are no personnel changes contemplated for the remainder of 2014.

As the project focus shifted from local approvals and state certifications to obtaining federal licensure, FPL determined it was beneficial to create a more direct link to the Chief Nuclear Officer (CNO) for Development and New Nuclear Plant. As of March 30, 2013, both organizations report directly to the CNO.

The company states that this change does not impact internal project operations, subordinate structures, or existing relationships with contractors and regulators.

2.2.4 AUDITS

In 2013, an audit of the 2012 project expenditures was completed by Experis, under the direction and supervision of FPL Internal Audit. Areas examined included [REDACTED] and [REDACTED] of annual NCRC filings. The audit

examined approximately [REDACTED] million of the \$29.7 million in expenditures for the year, or approximately [REDACTED] percent of total. [REDACTED] Commission audit staff reviewed the audit results and report.

Also in 2013, Concentric Energy Advisors (Concentric) reviewed project activities and controls. Concentric has performed similar annual reviews since 2008. Concentric concluded that FPL appropriately and prudently managed the project in 2013.

In 2014, FPL selected Experis to again conduct an audit of project expenditures for 2013. Audit areas remained unchanged from the previous year. The most recent audit examined [REDACTED] million of the \$28.7 million in 2013 project expenditures ([REDACTED] percent). Commission audit staff reviewed the audit results and report. [REDACTED]

2.2.5 FPL QUALITY ASSURANCE REVIEWS

The FPL Quality Assurance (QA) group holds vendors accountable for process and product quality while under contract to FPL. Oversight of production quality, manufacturing activities, and control procedures is accomplished through inspections at the vendors' headquarters and/or manufacturing sites.

During 2013 and to date in 2014, FPL Quality Assurance assessors did not conduct any on-site manufacturer visits. For vendors working with FPL at company facilities QA assessors conducted spot visits and noted no areas of vendor non-compliance related to the project.

Commission audit staff believes that QA oversight is adequate and properly focused for the current stage and scope of the project. As the project expands dramatically in the transition from licensing to construction, project scale and tempo are correspondingly expected to accelerate. At that point, audit staff believes that on-site manufacturing visits and an FPL reassessment of its QA oversight plan, schedule, and structure will be warranted; restructuring may be necessary to accommodate project expansion.

2.3 CONTRACT OVERSIGHT AND MANAGEMENT

FPL states that project management, technical representatives, and quality assurance personnel monitor vendor performance. The company believes that this layered approach to monitoring ensures high quality vendor performance.

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

FPL believes its suite of systems, policies, procedures, and processes quickly and efficiently identify invoice mistakes or vendor overcharges. Invoicing specialists review all invoices for accuracy in meeting contract provisions and prevailing labor rates. Billed hours are scrutinized and checked against the appropriate job categories. Travel expense requests are checked for applicability, authorization, required justification, and linkage to an existing contract.

2.3.1 CONTRACT OVERSIGHT

FPL's existing controls governing contract oversight include policies and instructions, authorization requirements, approval methodologies, and invoicing and control procedures. In 2013, revisions to improve accuracy were completed for project instructions and procedures for document retention and processing, review of technical documentation, and monthly cost reporting.

Audit staff review reaffirmed that FPL invoicing policies and procedures are well understood and that FPL contract and invoicing personnel follow company policies, practices, and procedures. Evidence of challenges to invoiced amounts and an appropriate level of push back of questionable or unsupported charges was observed.

One warranty claim was made by FPL against a vendor during this report period, with [REDACTED] disputed for work related to RAI response preparation, required calculations, and the review of completed responses. FPL withheld payment, in compliance with project procedures, and negotiated with the vendor. As a result, FPL made a partial payment of [REDACTED] for work validated by both parties. To date, [REDACTED] remains unresolved and FPL states that negotiations continue.

Audit staff believes that the processes for contract oversight are adequate. Authorizations and required signatures are present. Supporting vendor documentation and invoiced amounts are challenged appropriately by FPL, with payment withheld until reconciliation of disputed issues. FPL memos and spreadsheet entries document communications regarding questionable invoices or supporting documentation by vendors and illuminate the actions of parties involved.

2.3.2 CONTRACTS EXECUTED OR MODIFIED

In 2013, project management executed four contracts with a value at or greater than \$100,000. All were single sourced. Commission audit staff verified that required letters of justification were present and in compliance with FPL internal policies and procedures. As shown in **Exhibit 5** below, none of the original contracts is greater than \$300,000.

TURKEY POINT 6&7 NEW CONTRACTS GREATER THAN \$100,000					
Vendor	Description	Terms	Original Value ⁶	Issued	Expire Date
Layne Christensen Company	Well Consulting & Services	T&E	[REDACTED]	07/01/13	06/26/15
Audio Visual Svcs Group	Hearing Support / AV Services	T&E	[REDACTED]	07/23/13	10/31/13
Blue Lagoon / Sofitel	Lodging Services for Hearings	Unit Price	[REDACTED]	05/06/13	08/31/13
AMEC Environment & Infrastructure	FSAR 2.5 RAI Response Review	T&E	[REDACTED]	10/02/13	08/31/15

EXHIBIT 5

Source: Document Request 1.34

As **Exhibit 6** below shows, FPL executed ten change orders (CO) in 2013, each valued at \$100,000 or more. There have been no additional change orders in 2014.

⁶ Value includes original contract and any subsequent change orders

Each CO represents added or deleted scope, an increase or decrease of contract value, or an administrative adjustment without monetary impact. Commission audit staff reviewed the justification and authorization of each change order. No anomalies were noted.

The value of changes orders executed in 2013 is approximately \$4.23 million. FPL used the change orders to address changed requirements and/or newly required work activities for the COLA, support of the SCA hearing process, and Underground Injection Well testing. These three categories represent 88.3 percent of the total change orders in 2013:

- ◆ Paul C. Rizzo Associates – Three change orders, totaling [REDACTED] million ([REDACTED] percent of the total), for field investigations and FSAR 2.5 revisions in response to NRC RAI identifying new requirements in support of the FPL COLA.
- ◆ Golder Associates Inc. and Environmental Consulting and Technology, Inc. – One change order each, totaling [REDACTED] million ([REDACTED] percent), to support extended SCA hearings.
- ◆ Layne Christensen Company – One CO ([REDACTED] percent) to undertake the testing phase of the Underground Injection Well.

TURKEY POINT 6&7 CHANGE ORDERS GREATER THAN \$100,000			
Vendor	Year	CO #	CO Value
Golder Associates Inc.	2013	9	[REDACTED]
ECT	2013	10	[REDACTED]
Curtis Group	2013	6	[REDACTED]
Normandeau	2013	3	[REDACTED]
Ammon	2013	1	[REDACTED]
Layne Christensen Company	2013	3	[REDACTED]
Blue Lagoon / Sofitel	2013	1	[REDACTED]
Paul C. Rizzo Associates	2013	1	[REDACTED]
Paul C. Rizzo Associates	2013	3	[REDACTED]
Paul C. Rizzo Associates	2013	4	[REDACTED]

EXHIBIT 6

Source: Document Request 1.36

There are 16 open contracts (**Exhibit 7**) valued at more than \$250,000, encompassing the original contract value plus any subsequent increases. Commission audit staff reviewed all contract justifications; no discrepancies were noted. Bechtel has the largest contract at [REDACTED] million. Signed in 2007, this contract contains more than 40 change orders. Due to the probability of project schedule extensions, it is likely that the Bechtel contract will increase in value through additional change orders.

**TURKEY POINT 6&7
EXISTING CONTRACTS GREATER THAN \$250,000**

Vendor	Description	Current Est. Value	Type*
AMEC Environment & Infrastructure	RAI response review		S
AMEC Environment & Infrastructure	RAI response review / FSAR 2.5.4		S
Atkins North America	Expert scientific analysis		S
Bechtel Power Corporation	COLA / SCA prep & RAI support		C, S, P
Burns & McDonnell	Design of radial collector well		C, S
Curtis Group	SCA and land use / zoning		S
Eco Metrics, Inc.	Environmental consulting services		S
Environmental Consulting & Technology	SCA & post-submittal support		S, P
EPRI - Electric Power Research Institute	Nuclear technology; membership		S
Golder & Associates Inc.	Post-SCA submittal support		S, P
HDR Engineering	Conceptual engineering of cooling water supply / discharge		C, S
Layne Christensen Company	Injection well testing		C
McCallum Turner, Inc.	COLA site selection, RAI support		S
McNabb Hydrogeologic Consulting	Post-SCA / UIC licensing support		S, P
Paul C. Rizzo Associates, Inc.	Field Investigation; FSAR 2.5.4 Revision		S
Power Engineers, Inc.	Analysis of Miami River Crossing & Davis/Miami Line		S
TetraTechGeo	Collector well modeling support		S
Westinghouse Electric Co.	COLA prep & RAI support		C, S, P
* C = Competitive Bid		S = Single/Sole Source	
		P = Predetermined Source	

EXHIBIT 7

Source: DR-1.33 and Docket No. 140009-EI, Witness Scroggs, Exhibit SDS-7, Schedule P-7A, May 2014

3.0 EXTENDED POWER UPRATE

3.1 KEY PROJECT DEVELOPMENTS

In April 2013, FPL placed Turkey Point Nuclear Unit 4 (PTN-4) in service to complete its EPU project. Upgrades at Turkey Point Nuclear Unit 3 (PTN-3) and St. Lucie Nuclear Units 1 and 2 (PSL-1 and PSL-2) were completed in 2012.

For the remainder of 2013, FPL concentrated its efforts on closing out thousands of activities at both St. Lucie and Turkey Point units. According to FPL, there were no issues encountered with EPU project close-out activities that significantly affected the EPU project costs in 2013.

FPL states that its 2014 EPU request for recovery will be its last. Except for accounting true-up, the company will not submit a request for EPU-related cost recovery in 2015 or beyond.

Some of the key closeout activities that were conducted included:

- ◆ Engineering Change package closeouts
- ◆ Reduction of EPU project staff
- ◆ Closeout related purchase orders and contracts
- ◆ Finalization of engineering documents
- ◆ Updating Final Safety Analysis Reports and Design Basis Documents
- ◆ Updating of drawings and calculations
- ◆ Closeout of all EPU related work orders
- ◆ Evaluate preventive maintenance requirements for new and modified components
- ◆ Develop preventive maintenance model work orders
- ◆ Complete and test control room simulator changes
- ◆ Completion of procedure revisions
- ◆ Identify and purchase spare parts
- ◆ Update training materials
- ◆ Complete EPU related action requests and condition reports
- ◆ Demobilization and restoration of site facilities
- ◆ Salvage recovery

Formal turnover from the EPU organization to the St. Lucie Plant organization was completed on July 2, 2013 and from EPU to the Turkey Point Plant organization on December 31, 2013. EPU contractors were demobilized and remaining EPU employees were reassigned. The average number of EPU employees was reduced from 3,537 in 2012 to 198 by fourth quarter 2013. In 2014, FPL anticipates the number of EPU employees to be reduced to zero.

3.2 PROJECT COSTS

As of April 2014, the total EPU project cost was \$3.390 billion. As shown in **EXHIBIT 8**, the \$3.390 billion is comprised of \$3.120 billion in Engineering and Construction costs and \$270 million in allowance for funds used during construction (AFUDC) and carrying charges.

EPU COST ESTIMATE AND CHANGES 2013-2014			
Category	2013 (billion)	2014 (billion)	2013-2014 Change (billion)
Engineering and Construction	\$3.129	\$3.120	\$(0.009)
AFUDC and Carrying Charges	\$0.269	\$0.270	\$0.001
Total	\$3.398	\$3.390	\$(0.008)

EXHIBIT 8

Source: Document Request 2.1

3.3 INCREASED MEGAWATT PRODUCTION

EXHIBIT 9 below depicts the expected versus actual MWe capacity increased after EPU implementation on all four units. The EPU project yielded a total increased capacity of 522 MWe, 31 percent higher than the original plan of 399 MWe.⁷

EPU OUTPUT EXPECTED VS ACTUAL			
Unit	2007 Need Filing MWe	2013 Actual MWe	Percentage Better Than Plan
PSL-1	103	148.4	44 percent
PSL-2	88 ⁷	131.3 ⁷	49 percent
PTN-3	104	116	12 percent
PTN-4	104	126	21 percent
Total	399⁷	522⁷	31 percent

EXHIBIT 9

Source: Document Request 2.1

3.4 UNIT OPERATIONS IN UPRATE CONDITIONS

Extended power uprates require significant modifications and replacements to major pieces of equipment. This may include installation of more efficient high-pressure turbines, condensate pumps and motors, main generators, heat exchangers, and transformers. The equipment changes are necessary to accommodate increased reactor power. FPL performed almost all of the uprate work during the planned refueling outages for each unit to minimize the length of time the units would be off line.

Over the course of major construction projects, stand downs and work stoppages may occur to ensure safe project work conditions and quality work. According to FPL, there were no

⁷ FPL owner net share minus house loads (total Florida increase is 545 MWe) – Source: Document Request 2.1

EPU related stand downs or work stoppages imposed in 2013. However, in 2013, FPL did experience two EPU-related outages as discussed further below.

3.4.1 PSL-1 EPU-RELATED OUTAGE

PSL-1 operated at EPU conditions continuously for 230 days after EPU startup in July 2012. On March 12, 2013, the unit automatically shut down due to a malfunction of the Main Steam Isolation Valve that was installed during the 2012 uprate. FPL repaired the damaged valves at a cost totaling approximately \$2.7 million. The unit was returned to service 21 days later and operated in the uprate condition for 182 days until it was shut down for scheduled refueling in September 2013.

3.4.2 PTN-3 EPU-RELATED OUTAGE

In April 2013, PTN-3 was shut down to repair the steam generator feedwater pumps that were installed as part of the EPU uprate. The unit outage was approximately six days and the cost of the repair was approximately \$1.3 million.

3.5 PROJECT CONTROLS AND OVERSIGHT

3.5.1 CHANGES TO CONTROLS AND OVERSIGHT

As the EPU project was completed and project staff was demobilized, the EPU project team made periodic revisions and deletions to project management policies and procedures. In 2013, FPL revised five work instructions to reflect changes to the EPU organization, roles and responsibilities, tracking and processing invoices, and obtaining approval for procurement of materials. Twelve EPU Project Instructions that were no longer needed were deleted.

All FPL internal reports to the Board of Directors and senior management discussing St. Lucie and Turkey Point EPU project updates and close-out actions were discontinued throughout 2013 as work was completed. Commission audit staff identified no deficiencies in procedures and controls as the EPU project was closed-out.

3.5.2 PROJECT RISK MANAGEMENT

During the EPU project, FPL identified project risks weekly in Risk Registers presented in the Monthly Operating Performance Report. The probability of each identified risk occurring and the estimated potential cost impact are estimated and mitigation activities and strategies are developed. When each risk is satisfactorily mitigated, the risk item is closed. During the project closeout process in 2013, FPL identified, tracked, and mitigated several risks associated with project closeout activities such as warranty work, preventive maintenance work orders, and procedure reviews. FPL added resources to ensure completion of these activities and held weekly meetings to increase attention on completing closeout activities.

3.5.3 QUALITY ASSURANCE

FPL's Quality Assurance group provides oversight of all safety-related EPU work and major non-safety projects valued greater than \$100,000. There were no safety-related quality assurance issues impacting the projects during 2013. Consequently, there were no Quality Assurance audits conducted in 2013.

3.5.4 EPU CONTRACTS

Commission Audit Staff notes that negotiating warranty claims and concessions is an expected part of project management. According to FPL, all warranty claims have been resolved. The company recovered approximately \$1.5 million.

In 2013, ten warranty claims were settled. Eight of the ten were settled by various vendors returning to perform appropriate repairs with no payment to FPL. Two others were resolved by vendors paying FPL approximately \$83,000 dollars.

In the final phase of the PSL and PTN updates, FPL concentrated its efforts on closing all EPU service and material contracts. As of June 2014, all contracts (over 1,664) have been closed with the exception of the [REDACTED] contract with [REDACTED]. FPL kept that contract open to pursue a warranty claim regarding the steam generator feedwater pump failure. According to the company, the claim was resolved for [REDACTED] in June 2014 and the contract will be closed by July 2014.

FPL also pursued warranty claims with [REDACTED] and [REDACTED] regarding the Main Steam Isolation Valve malfunction which caused the PSL-1 shut down in March 2013. In May 2014, FPL resolved its warranty claim against [REDACTED] recovering [REDACTED]. In June 2014, FPL resolved its warranty claim against [REDACTED] for [REDACTED] and resolved its warranty claim against [REDACTED] for [REDACTED].

Also, according to FPL, the company realized total cost savings of approximately \$15.6 million in 2013 through concessions from [REDACTED]. Concessions were in the form of reductions in craft labor rates and daily living allowances, a freeze on subcontracted costs, lower project demobilization costs, and the elimination of incentives tied to performance.

3.5.5 INTERNAL AUDITS

In 2013 and 2014, six EPU-related audits were conducted by FPL's Internal Auditing department or under the direction of Internal Auditing. Of the six audits, two were to [REDACTED] on a [REDACTED] regarding [REDACTED]. According to a FPL internal audit report, FPL is [REDACTED] the [REDACTED] paid to the [REDACTED] and [REDACTED] the [REDACTED] from its [REDACTED].

Two internal audits were also conducted on EPU project expenditures. Both of these audits [REDACTED] appropriately, resulting in conclusions by FPL's auditors that EPU project [REDACTED]. Two additional fleet-wide audits of process and controls were conducted that were specifically focused on FPL's entire fleet, rather than the EPU project. [REDACTED] any [REDACTED] related to EPU.