

Review of Florida Power & Light Company's Project Management Internal Controls For Turkey Point 6 & 7 Construction

JUNE 2017

BY AUTHORITY OF
The Florida Public Service Commission
Office of Auditing and Performance Analysis

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Project Management
Internal Controls
for
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1.0 Executive Summary

1.1 Turkey Point 6&7 Project at a Glance

The Turkey Point 6&7 (PTN 6&7) nuclear project is reaching the end of the licensing phase. Obtaining and maintaining a Combined Operating License (COL) from the Nuclear Regulatory Commission (NRC) will remain the primary focus of Florida Power & Light Company (FPL or the company) beyond 2017 and for the next several years. FPL believes it will receive the operating license late this year or early 2018 after which the project will be paused. Should future conditions favor building additional nuclear generation capability, FPL states that it can make a timely transition into the remaining pre-construction work and the construction phase. Currently, the pause is expected to last at least four years.

1.2 Audit Execution

1.2.1 Purpose and Objective

This audit addresses project internal controls and management oversight used by FPL in managing the PTN 6&7 project. The primary objective of this audit is 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 2016, each a review of relevant project management Internal Controls related to FPL's nuclear construction projects. These previous reports are available on the Commission website at www.floridapsc.com.

1.2.2 Scope

The period of this review is January 2016 to May 2017. Staff examined the adequacy of FPL PTN 6&7 project management and internal controls. Internal controls assessed are 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 essential for successful project management but even adequate and comprehensive controls are ineffective if not actively emphasized by management, universally embraced by the organization, and subject to comprehensive, ongoing oversight and revision. Proper internal controls minimize risk, enhance its mitigation and management, and aid efficient, reasoned decision making.

Risk must be timely and accurately identified with adequate safeguards created, vetted, and actively employed to control schedule and cost. Prudent decision making results from effective communication, adherence to clearly defined procedures, and vigilant management oversight.

The primary standard used by Commission audit staff for review of FPL internal controls associated with the PTN 6&7 project is the Institute of Internal Auditors' *Standards for the Professional Practice of Internal Auditing and Internal Control - Integrated Framework*. Staff's audit work is performed in compliance with Institute of Internal Auditors Performance Standards 2000 through 2500. These standards were developed by the Committee of Sponsoring Organizations (COSO) of the Treadway Commission. Staff's internal control assessments focused on the COSO framework's five key, interrelated elements of internal control:

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

To maximize 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.

1.2.3 Methodology

Initial planning, research, and data collection occurred from December 2016 through January 2017. Staff interviewed PTN 6&7 project management in April 2017.

Audit staff conducted additional data collection and analysis through May 2017 and reviewed project internal audits and company testimony, discovery, and filings in Docket No. 170009-EI. During this review, staff collected and analyzed a large volume of information, including:

- ◆ Policies and procedures
- ◆ Organizational charts
- ◆ Project timelines
- ◆ Vendor and contract change orders and updates
- ◆ Vendor invoices
- ◆ Internal and external audit reports

1.3 Commission Audit Staff Observations

Based upon its 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, universally understood and followed.

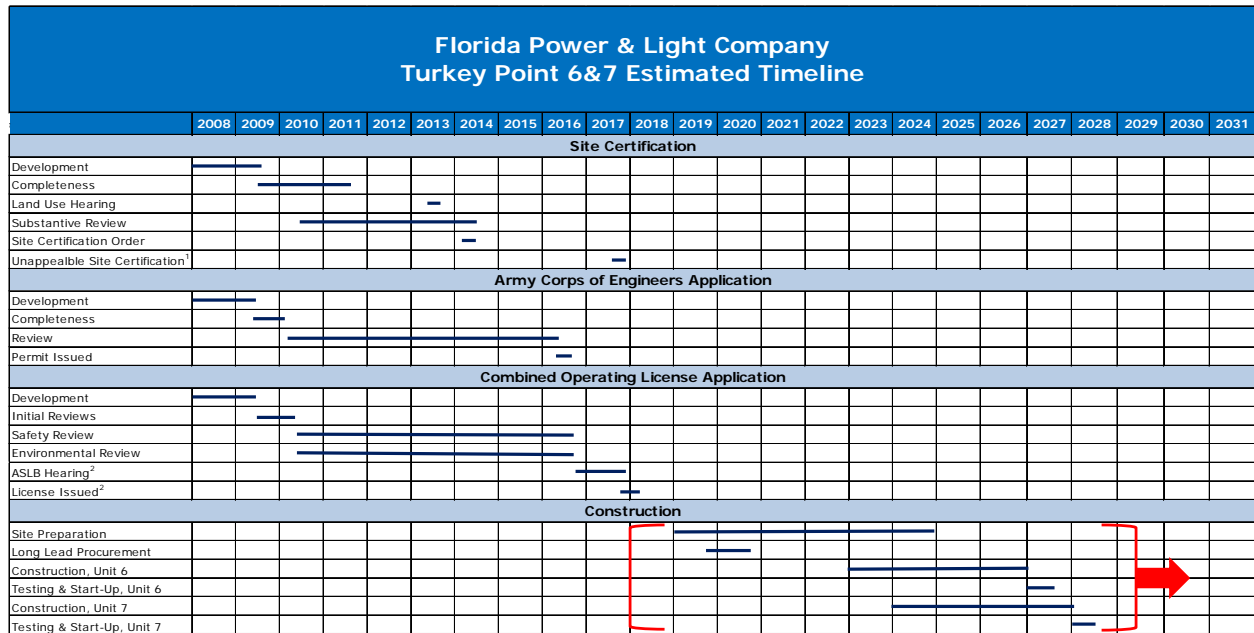
- ◆ Contracts and contract change orders (CO) adhere to FPL procedures and include all required justifications.
- ◆ The process by which FPL reached its decision to continue the delay in pre-construction activities is reasonable.

2.0 Turkey Point 6&7 Project

2.1 Key Project Developments

2.1.1 Combined Operating License Application (COLA) Status and Schedule Pause

FPL states that it anticipates receiving its Combined Operating License in late 2017 or early 2018. Upon receipt, the company intends to pause the project to observe and understand the challenges faced by the first wave of AP1000 projects currently underway. **Exhibit 1** shows the estimated current timeline.



¹ TBD; Pending legal resolution

² Assumes a contested hearing

■ Current Estimate; TBD

EXHIBIT 1

Source: FPL Response to Document Request 3.1

During this pause period, FPL will be engaging in activities necessary to defend and maintain COL-associated permits, licenses, certifications, and approvals. FPL’s staff of licensing engineers will oversee the incorporation of license amendments approved for other AP1000 projects.

According to FPL, maintenance activities also include continuing compliance with the Conditions of Certification or other permit conditions and collecting lessons learned from the first wave of AP1000 projects. Additionally, FPL will be assessing execution structure, contract price, terms and conditions, and schedule of the first wave projects to assess improvements to costs and schedules. FPL also plans to monitor economic factors that could affect the decision to proceed with construction.

2.1.2 Turkey Point 6&7 Project Cost Estimate

For 2017, FPL established a revised project cost estimate range of \$14.96 billion to \$21.87 billion. This is an increase from last year’s project cost estimate range of \$13.67 billion to \$19.96 billion. **Exhibit 2** shows projected low and high cost estimates by year since inception in 2007.

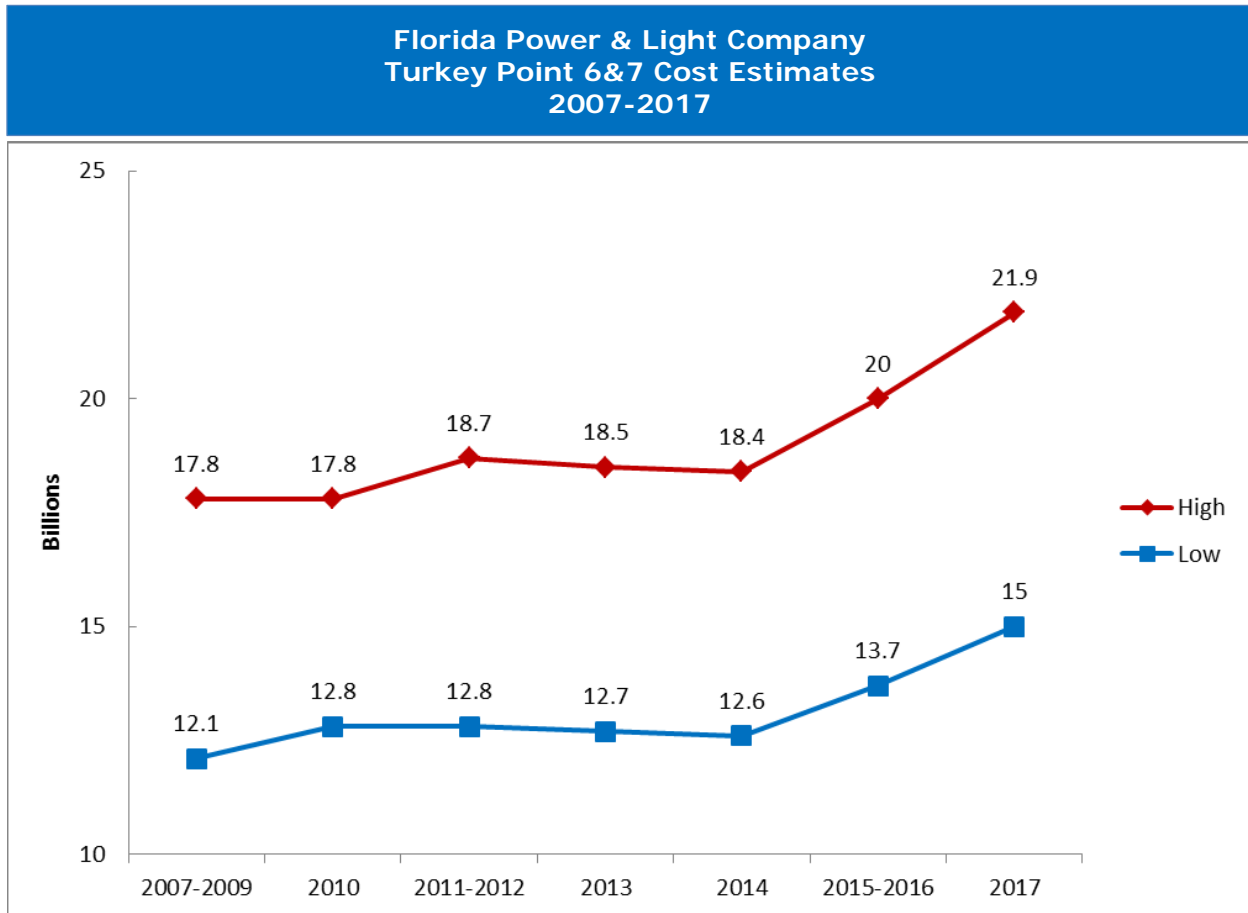


EXHIBIT 2

Source: Staff Interviews, April 2017

The multi-year project pause drives the PTN 6&7 2017 increase in the estimated cost range. The project pause, estimated to be at least four years, pushes testing and start up dates for PTN 6&7 from 2027 and 2028 to at least 2031 and 2032, respectively, increasing time-related project costs. FPL also assumes a 2.5 percent year-to-year escalation rate consistent with past practices.

Exhibit 3 displays a breakdown of the new estimate which represents a 9.5 percent increase in the low end of the 2016 cost estimate range and a 9.5 percent increase in the high end.

Florida Power & Light Company Turkey Point 6&7 In-Service Cost Estimate 2016 and 2017 (\$)				
Category	2017 Low	Increased Low from 2016	2017 High	Increased High from 2016
Site Selection	6,118,105	0	6,118,105	0
Pre-construction	346,806,203	44,500,765	382,638,812	47,492,436
Construction	11,155,665,197	1,036,291,540	16,406,703,271	1,530,148,283
AFUDC	3,453,640,899	214,524,029	5,079,290,267	336,460,284
Total	14,962,230,404	1,295,316,334	21,874,750,455	1,914,101,003

EXHIBIT 3 Source: Dkt 160009-EI, Schedule TOR-2, May 2016 & Dkt 170009-EI, Schedule TOR-2, May 2017

2.1.3 Toshiba/Westinghouse Bankruptcy

In March 2017, Toshiba Corporation’s U.S. nuclear unit, Westinghouse Electric Company, filed for bankruptcy. Toshiba states that it is considering selling all or parts of Westinghouse as well as an internal reorganization.

FPL states that the Westinghouse bankruptcy will not affect the remaining COL timeline, and Westinghouse has continued to support the licensing amendments associated with existing and pending licenses. Additionally, while Westinghouse’s future as a construction contractor is uncertain, FPL states that Westinghouse will likely retain the engineering and procurement role for AP1000 projects.

With the impacts of the Westinghouse bankruptcy still unknown, FPL states that the project could still proceed without an EPC contract. Westinghouse could provide engineering and procurement services while another company, or group of companies, could fulfill the construction services. However, under a possible reorganization or buyout of Westinghouse, an EPC contract approach could still be an option.

2.1.4 State Site Certification and the Current Legal Appeal

FPL received Site Certification from the State Siting Board in May 2014, granting approval for the project and 88 miles of new transmission lines. The cities of Miami, South Miami, Pinecrest, and Coral Gables opposed and filed legal challenges.

On April 20, 2016, the Third District Court of Appeals (3rd DCA) issued an Order identifying three deficiencies with the Site Certification Final Order. The court opined that the Siting Board failed to consider applicable land development regulations, incorrectly believed it did not have authority to compel FPL to install new transmission lines underground, and that local environmental regulations were incorrectly interpreted as zoning issues. However, the State Certification Final Order includes a severability clause, limiting the effect of the 3rd DCA’s mandate to the identified deficiencies. FPL petitioned for a rehearing before the full 3rd DCA.

On November 22, 2016, 3rdDCA denied the FPL petition and issued an Order remanding the Site Certification back to the Siting Board, specifically for that body to address the three deficiencies.

On December 22, 2016, FPL filed a petition seeking Florida Supreme Court review of the 3rd DCA Order.

On January 18, 2017, FPL filed a motion with the Florida Supreme Court to stay the effect of the 3rd DCA mandate while their review proceeded. On February 24, 2017, the Florida Supreme Court denied the motion and declined to take jurisdiction in this matter.

One possible resolution FPL may pursue is to negotiate settlements with stakeholders that would be presented to the Siting Board for a reexamination of the issues. The company states that it intends to pursue resolution to this issue in the near future.

2.1.5 Transmission and Land Exchange

FPL and the National Park Service entered into a Land Exchange Agreement in March 2016 in preparation for completing the exchange of properties in the Eastern Everglades to support the project West Consensus Corridor. The transfer of lands was completed in November 2016.

FPL has initiated some development activities included in the Land Exchange Agreement. Consistent with the Site Certification Final Order Conditions of Certification, these activities include design, surveys, and legal reviews to determine if the West Consensus Corridor can develop in a timely and cost-effective manner. FPL states that the completion of the exchange and undertaking activities to develop the West Consensus Corridor have aided progress toward the finalization of the project's transmission alignment.

Final alignment of the western transmission routing will be completed per the Conditions of Certification to address the West Consensus Corridor and the Miami-Dade County Environmental Overlay identified in the 3rd DCA ruling. According to FPL, progress on transmission projects along the eastern transmission corridor described in the Turkey Point Site Certification continues due to emergent Federal Energy Regulation Commission requirements that make these projects necessary at this time. This may result in new infrastructure that negates or modifies the need for the transmission alignment included in PTN 6&7 Site Certification. Therefore, FPL believes that issues associated with eastern transmission lines in the Site Certification may be inconsequential.

2.1.6 Other Federal Applications, Approvals, or Certifications

There were no federal applications, approvals or certifications issued or submitted in 2016. The following reports, permits, or licenses completed or anticipated in 2016 and 2017 are:

- ◆ NRC Final Safety Evaluation Report (SER) – issued November 2016
- ◆ NRC Final Environmental Impact Statement (FEIS) – issued October 2016
- ◆ NRC Combined Operating License (COL) – Anticipated late-2017 or early-2018
- ◆ US Army Corps of Engineers (USACE) 404b and Section 10 permit – the estimated issue is late-2017, now that the FEIS has been issued

2.1.7 Project Joint Ownership

FPL continues to hold annual meetings with prospective joint owner utilities, providing meeting reports to the Commission. In 2016, FPL presented its annual update to potential joint owner participants on May 26. No formal discussions were held. Representatives of the following

utilities participated: Seminole Electric, Lakeland Electric, JEA, FMPA, OUC, and the City of Ocala. A date for the 2017 meeting has not been set.

2.1.8 NRC Request for Information (RAI)

The NRC generated two new RAIs during this audit period, both in early 2016. Responses from FPL were due to the NRC by mid-March 2016. The company satisfied each request, providing timely responses to the NRC.

2.1.9 FPL Project Feasibility Analyses

FPL submitted a project feasibility analysis annually through 2015. Each analysis considered multiple economic scenarios, varying conditions, and assumptions to determine the feasibility of continuing the project, while simultaneously providing an additional layer of project accountability and management oversight.

FPL did not produce or submit a feasibility analysis in 2016. Instead, the company filed a petition for waiver of the requirement under Rule 25-6.0423(6)(c)5, Florida Administrative Code (Petition for Waiver). Several parties in the docket challenged the lack of a feasibility analysis. In June 2016, FPL filed a Motion to Defer Consideration of Issues and Cost Recovery and PSC Order No. PSC-16-0266-PCO-EI granted the deferral. The order decision stated that FPL intended to file a 2017 feasibility analysis.

However, FPL again did not file a 2017 feasibility analysis. The company believes that absent a request for cost recovery no requirement to file an annual analysis exists. No cost recovery has been filed by FPL for 2017 as of the date of report publication.

2.2 Project Controls and Oversight

2.2.1 Project Controls

Project controls are built into the financial accounting systems, department procedures, and desktop instructions. Controls and process instructions exist in the following areas of project management:

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

FPL's Project Controls Group provides management schedule, budget, costs, vendor performance, and risk reports on a regular, ongoing basis. Primavera-6 remains the scheduling

software. This software is capable of real-time updates, active monitoring, tailored date sorting, and customized status reports.

There was one New Nuclear Project (NNP) Instruction created and approved in 2016:

- ◆ NNP-PI-510, *Environmental Evaluation of Potential New and Significant Information*

The following Project Instructions were revised in 2016:

- ◆ NNP-PI-01, *Request For Information (RFI) And RFI Response*
- ◆ NNP-PI-03, *Project Document Retention And Records Processing*
- ◆ NNP-PI-04, *Cola Configuration Control And Responses To Request For Additional Information For Project Applications*
- ◆ NNP-PI-05, *NNP Project Correspondence*
- ◆ NNP-PI-08, *Cola Review And Acceptance Process*
- ◆ NNP-PI-12, *Hosting Visiting Dignitaries at the FPL Juno Campus and Preconstruction Tours of the PTN 6 & 7 Site*
- ◆ NNP-PI-14, *Discovery Production Instructions Related To Turkey Point 6 & 7 Combined License Hearing*
- ◆ NNP-PI-303, *Preparation of Interim Staff Guidance – 011 Screens/Evaluations*

NNP-PI- 07, *Department Training* was reviewed in 2016 and superseded in January 2017.

NNP-PI-015, *Exploratory And Dual Zone Monitoring Well Project Incident Response Instructions* was reviewed in early 2017. No revision was required.

In anticipation of receiving its COL, the company initiated review of some other Project Instructions in 2016 and began preparation of procedures for maintaining the COL. In addition, the company states that all current procedures will be updated to meet the format and numbering requirements in NNPDI- 402, *Preparation, Revision, Review, and Approval of New Nuclear Projects Project/Desktop Instructions*.

According to FPL, these revisions were responsive to changing project requirements. No internal audits, quality assurance reviews, or external audits reviewed by staff cited any deficiencies in project instructions or management controls.

Additionally, FPL utilizes white papers to record and document key decisions or actions. One white paper was produced in April 2016 entitled *PTN 6&7 Combined Operating License Maintenance*, recommending that FPL maintain the COL (e.g. incorporating design changes as they occur) after the receipt if the project is to be deferred for more than one year.

2.2.2 Risk Management Reporting

Weekly team meetings track project activities, identify risks, discuss mitigation or remediation options, and develop a strategy to address each. Items are either resolved by the small teams or elevated to incrementally higher management levels until resolution is achieved.

Schedule, progress, and cost are continually monitored and tracked in real time. Standardized, regular reports increase subject matter familiarity and provide close scrutiny of contractor performance. FPL states that it requires vendors to provide weekly reports identifying, describing, recording, and addressing risks.

FPL reports that the project team also meets monthly, reviewing schedule, budget, current and potential issues, and risks. Project risks are tracked and reviewed until resolved and closed out. A monthly Cost Report meeting also provides an opportunity to scrutinize project cost risk. Project management provides regular project updates to executive management.

Commission audit staff reviewed project dashboards and risk analyses. These reports detail the identified risk issue, risk, probability of occurrence, and potential for impact on project cost and schedule. Project Risk Assessment subject areas appear below.

- ◆ NRC Licensing
- ◆ USACE Permitting
- ◆ Site Certification Application
- ◆ Underground Injection Control Wells
- ◆ Miami-Dade County Zoning Issues
- ◆ Development
- ◆ Project Design
- ◆ Pre-Construction Planning
- ◆ Budget
- ◆ Schedule
- ◆ Procurement
- ◆ Safety

Another important management assessment tool is the quarterly risk assessment that focuses on licensing, permitting, and activities associated with project development. The assessment identifies key issues impacting the project, characterizes them, provides historical trending, and tracks the risk associated with each. The quarterly risk assessment is intended to estimate the likelihood of occurrence for each identified risk (low, medium, or high) and the potential negative project consequences (low, medium, high). A response is then developed for each and an issue is designated, management strategies are developed, and progress on remediation activities are tracked until the risk is sufficiently mitigated or eliminated.

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 2016 thru May 2017.

Commission audit staff believes FPL risk controls are adequate and responsive to the current project. Dashboards and quarterly assessments inform FPL management and executive leadership. As the project matures post-pause and exponentially increases in scope during the pre-construction and construction phases, commission audit staff recommends that FPL should reassess its risk management approach to meet the demand of the expanded project.

2.2.3 Management Oversight

During the last year, FPL made changes to its PTN 6&7 project management oversight organization and to reporting. The Construction Director completed the requirements associated with initial project assessments and, coupled with the FPL decision to pause the project upon receipt of its license, the position was eliminated. FPL also anticipates reassigning contractor staffing when the COL is received.

Project organization and reporting were also modified with New Nuclear Projects Engineering now reporting to the License Director. In January 2017, the Nuclear Division was reorganized and New Nuclear Projects now reports directly to the Next Era Energy president and the chief nuclear officer.

2.2.4 Audits and FPL Quality Assurance Reviews

FPL selected Experis to perform an external audit of the 2016 PTN 6&7 project expenditures under the supervision and direction of the FPL Internal Audit Department. The audit report was published in early 2017 and reviewed by Commission audit staff. Audited areas included employee reimbursed expenses, third-party invoices, payroll, and reconciliation actions associated with annual NCRC filings. No exceptions were noted.

Concentric Energy Advisors conducted a review of FPL internal project controls, processes, and procedures employed to manage and implement the PTN 6&7 project. Concentric concluded that FPL prudently incurred 2016 project costs. The review also offered two general recommendations related to FPL's post-COL phase. It recommended that the company prepare to increase internal audit oversight as the project accelerates after the pause and to coordinate closely with the NRC in the near term to fully understand the oversight requirements of COL maintenance during the project pause.

2.3 Contract Oversight and Management

Project contract management and oversight processes remain unchanged, employing project management, technical representatives, and QA personnel to monitor vendor performance. Vendors are required to provide regular progress reports.

FPL uses project systems, policies, practices, and procedures to monitor change orders and invoices for errors. Invoicing specialists review every invoice for accuracy, ensuring each complies with provisions of the contract and current labor rates. Billed hours are scrutinized and checked against job categories. Travel expense requests are vetted for project applicability and linkage to an existing contract, proper authorization, and any required justification.

Sourcing specialists and contract managers monitor contract change orders and invoices for errors. Anomalies are reported; potential schedule and/or cost impacts are identified and quantified. This information is then used to formulate responsive solutions.

2.3.1 Contract Oversight

Contract oversight is unchanged from 2016. Controls include project policies and instructions, authorization requirements, approval methodologies, and invoicing procedures. FPL made no revisions or changes to contractor selection or contractor management policies and procedures during 2016 through May 2017.

From Commission audit staff’s review, the FPL invoicing policies and procedures are well understood. Contracting and invoicing personnel appear to follow company policies, practices, and procedures. Required authorizations examined were present and complied with procedures. Vendor invoices and supporting documentation are vetted by FPL project sourcing personnel who challenge contract anomalies.

There were no warranty claims initiated against project contractors from January 2016 through 2017 YTD.

2.3.2 Contracts Executed or Modified

There were no new contracts valued at \$100,000 or more from January 2016 through May 2017. **Exhibit 4** shows the six current contracts valued at \$250,000 or more. This number is down from the prior year when 11 contracts were valued at \$250,000 or higher.

Florida Power & Light Company Turkey Point 6&7 Existing Contracts Greater than \$250,000 2016 - YTD 2017		
Vendor	Description	Type*
AMEC Environment & Infrastructure	RFI response review / FSAR 2.5.4	S
Bechtel Power Corporation	COLA / SCA prep & RAI support	C, S, P
EPRI - Electric Power Research Institute	Nuclear technology; membership	S
Paul C. Rizzo Associates, Inc.	Field Investigation; FSAR 2.5 Revision	S
Power Engineers, Inc.	Prelim Analysis of Miami River crossing and Davis/Miami Line	S
Westinghouse Electric Co.	COLA prep & RAI support	C, S, P
* C = Competitive Bid S = Single/Sole Source P = Predetermined Source		

EXHIBIT 4

Source: FPL Response to Document Request 1-26

Contract change orders add or delete scope, increase or decrease contract value, or represent an administrative adjustment without a monetary impact. FPL executed three contract change orders valued at \$50,000 or more during 2016 – 2017 YTD.