BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

DOCKET NO. 100009-EI
FLORIDA POWER & LIGHT COMPANY

MARCH 1, 2010

IN RE: NUCLEAR POWER PLANT COST RECOVERY
FOR THE YEAR ENDING
DECEMBER 2009

TESTIMONY & EXHIBITS OF:

TERRY O. JONES

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**FLORIDA POWER & LIGHT COMPANY**

**DIRECT TESTIMONY OF TERRY O. JONES**

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**MARCH 1, 2010**

**Q. Please state your name and business address.**

A. My name is Terry O. Jones, and my business address is 700 Universe Boulevard, Juno Beach, FL 33408.

**Q. By whom are you employed and what is your position?**

A. I am employed by Florida Power & Light Company (FPL) as Vice President, Nuclear Power Uprate.

**Q. Please describe your duties and responsibilities in that position.**

A. In my current role, I report directly to the Chief Nuclear Officer. I am responsible for the management and execution of the Extended Power Uprate (EPU) Project(s).

**Q. Please describe your educational background and professional experience.**

A. I was appointed Vice President, Nuclear Power Uprate on August 1, 2009. In my current position I provide executive leadership, governance and oversight to ensure the safe and reliable implementation of the EPU Projects for the four FPL nuclear units.

I joined FPL in 1987 in the Nuclear Operations Department at Turkey Point. Since then, my positions at FPL have included Vice President, Operations, Midwest Region, Vice President, Nuclear Plant Support, Vice President, Special Projects, Vice

President, Turkey Point Nuclear Power Plant, Plant General Manager, Maintenance Manager, Operations Manager and Operations Supervisor. Prior to my employment at FPL, I worked for TVA at Browns Ferry Nuclear Plant and served in the US Nuclear Navy. I hold a Bachelors of Science degree and earned an MBA from the University of Miami.

**Q. Are you sponsoring any exhibits in this proceeding?**

A. Yes, I am sponsoring the following exhibits which are incorporated herein by reference:

- Exhibit TOJ-1, T-Schedules, 2009 EPU Construction Costs, which consists of Appendix 1, containing schedules T-1 through T-7. Page 2 of Appendix 1 contains a table of contents listing the schedules that are sponsored and co-sponsored by FPL Witness Powers and myself.
- Exhibit TOJ-2, Extended Power Uprate Project Organization Chart
- Exhibit TOJ-3, Extended Power Uprate Project Instructions (EPPI) Index
- Exhibit TOJ-4, Extended Power Uprate Project Reports
- Exhibit TOJ-5, Typical Low Pressure (LP) Rotor Forging
- Exhibit TOJ-6, St. Lucie Low Pressure (LP) Turbine Rotors
- Exhibit TOJ-7, St. Lucie Low Pressure (LP) Turbine Rotor Rings
- Exhibit TOJ-8, St. Lucie Low Pressure (LP) Turbine Rotor Ring Testing
- Exhibit TOJ-9, Plant Change or Modification (PCM) Status as of December 31, 2009

- Exhibit TOJ-10, Extended Power Uprate Project Schedule as of December 31, 2009
- Exhibit TOJ-11, 2009 Extended Power Uprate Construction Costs
- Exhibit TOJ-12, Extended Power Uprate Equipment List
- Exhibit TOJ-13, St. Lucie and Turkey Point Pressurized Water Reactors (PWR) Basic Nuclear Steam Cycle

**Q. What is the purpose of your testimony?**

A. The purpose of my testimony is to present and explain key management decisions and uprate project activities that occurred in 2009, FPL's 2009 uprate construction expenditures, and the procedures, processes and controls which help ensure that those expenditures are reasonable and the result of prudent decision making. My testimony also explains the careful engineering-based process employed by FPL to ensure that it is including only nuclear uprate costs that are "separate and apart" from other costs, such as those for base rate nuclear operations and maintenance or capital projects that are unrelated to the nuclear uprates.

**Q. Please describe how your testimony is organized.**

A. My testimony includes the following sections:

1. High Level Project Summary
2. Project Management Internal Controls
3. Procurement Processes
4. Internal/External Audits and Reviews
5. 2009 Project Activities

6. 2009 Construction Costs

7. "Separate and Apart" Considerations

8. Conclusion

**Q. Please summarize your testimony.**

A. The EPU project team uses best industry practices and significant operating experience to manage this complex project, which will ultimately provide significant and quantifiable benefits for customers. The project team is in the process of performing engineering, procuring long lead equipment and materials, obtaining regulatory approval, and implementing plant modifications to support the uprate conditions in multiple outages for each of the nuclear units, resulting in increased combined electrical output. This process is supported by robust and overlapping project schedule and cost controls, along with aggressive risk management. These controls are subject to regular auditing and oversight.

Significant progress was made in 2009, including continued engineering evaluation and analyses in support of license amendment submittals to the Nuclear Regulatory Commission (NRC), the progress of activities and quality inspections related to the manufacture of long lead equipment, the management and implementation of the Engineering Procurement and Construction (EPC) contract, and detailed reviews of the modification installation planning and EPU outage schedules. Also, FPL made internal adjustments to the organizational structure, revised certain project instructions, and continued with project staffing.

The EPU team manages the Uprate work prudently and cost effectively, in a manner that ensures that only the costs necessary for the uprates are expended and included in the Nuclear Cost Recovery process. Overall, FPL spent approximately $237 million in 2009, as compared to the May 1, 2009 actual/estimated amount of approximately $258 million. The specific variances and explanations are provided later in this testimony.

## HIGH LEVEL PROJECT SUMMARY

**Q. How will customers benefit from the EPU project?**

A. The EPU project is an effort to increase FPL's nuclear generating capacity from its four existing nuclear units by at least 414 MW electric. Among other benefits, this increase in nuclear power will: (i) enhance system reliability and integrity by diversifying FPL's fuel mix; (ii) provide energy and baseload capacity to FPL's customers with zero greenhouse gas emissions; and (iii) provide significant fuel cost and environmental compliance cost savings.

**Q. Please describe the progress that has been made on the uprate project through 2009.**

A. In 2007, FPL prepared an initial feasibility study for performing an Extended Power Uprate (EPU) at St. Lucie and Turkey Point which included a conceptual cost estimate based on a conceptual scope. This study provided the basis for FPL's request for a determination of need. In 2008, Shaw Stone & Webster (Shaw)

performed a scoping study which included an order-of-magnitude estimate for part of the conceptual scope. The 2008 Shaw order-of-magnitude estimate was confirmatory of the 2007 FPL conceptual estimate.

The EPU project is being implemented in four overlapping phases.

1. In the Engineering Analysis Phase, the analyses that support the License Amendment Request (LAR) are performed. During this phase the major modifications required to implement the EPU are identified and confirmed, the LARs are prepared and submitted to the NRC for review, the NRC approves the plant license amendment, and the conceptual scope is better defined.
2. In the Long Lead Equipment Procurement Phase, the major long lead equipment is procured. During this phase, purchase specifications are developed, vendor quotes are requested, vendor proposals are received and evaluated, contracts are awarded, and the cost of long lead equipment is better defined.
3. In the Engineering Design Modification Phase the detailed modification packages are prepared. During this phase, calculations are prepared, construction drawings are issued, some equipment and materials are procured, general installation instructions are provided, and high level testing requirements are identified. These activities provide the basis for preparing detailed estimates of the implementation costs.
4. The final implementation consists of two major parts. The first is the planning and scheduling. Planning is the process to convert the design packages into detailed

work orders for implementation. During this part of the implementation revisions to the design may be warranted based on constructability. Scheduling is the process that takes the detailed work orders and converts them into a detailed integrated implementation schedule which ultimately is the point at which the final outage durations are determined. The second part of the final implementation is actual execution of the physical work in the plant including extensive testing and systematic turnover to operations.

As mentioned, these phases overlap. FPL is well into the Engineering Analysis Phase with one LAR submittal completed in 2009 and three LAR submittals planned for 2010. The EPU project is also in the middle of the Long Lead Equipment Procurement Phase with most of the long lead contracts awarded and the equipment in fabrication. In addition, the EPU project is simultaneously in the early stages of the Engineering Design Modification Phase with approximately 40% of the design modifications initiated and 2% of the design modifications issued. Finally, the EPU project is in the very early stages of the Implementation Phase with the overwhelming majority of the construction work expected to be performed during the refueling outages in 2010 through 2012.

**Q. Please describe the evolution of the project scope and cost.**

A. Because the EPU project is still relatively early in the phases described above, the project scope is not fully defined and thus definitive cost estimates have not been completed. FPL is currently developing a cost estimate range that recognizes the

uncertainties of this early stage of the project and quantifies the associated project risks. Following the submittal of the LARs to the NRC the potential exists that additional scope will be required by the NRC Staff. When the NRC approves the LARs the project scope will be further defined and, commensurate with modification engineering progress, the cost estimate range will be further tightened. Once the modification packages are final and the work order planning is complete the implementation scope will be fully defined allowing the final refinement of the detailed implementation cost estimates and schedule durations. These activities lead to increased cost certainty with the achievement of each milestone.

**Q. Please provide a brief overview of 2009 activities and costs.**

A. The EPU projects are progressing on schedule for implementation in 2011 and 2012 to deliver the substantial benefits of additional nuclear generating capacity to customers from FPL's existing St. Lucie Units 1 & 2 (PSL) and Turkey Point Units 3 & 4 (PTN) nuclear power plants, as planned by FPL and approved by the Commission. Several key activities occurred in 2009, including: (i) submittal of the Alternate Source Term (AST) LAR to the NRC for review and approval of the engineering evaluation and analyses in support of the Turkey Point Units 3 and 4 uprate; (ii) the progress of activities related to the detailed EPU LARs and modification engineering for the St. Lucie and Turkey Point Units; (iii) the execution and quality inspections of the vendor contracts for long lead procurement equipment; (iv) the progress of the EPC vendor contract; (v) detailed reviews of the modification installation planning and EPU outage modification assignments; and (vi) continued forward-looking project management

resulting in adjustments to project plans and procedures, and the continuation of project staffing.

In total, FPL spent approximately $237 million in 2009 to carry out these key activities and proceed with the development of the uprate projects, all of which work was subject to the robust project planning, management, and cost control processes that FPL has in place and continuously works to improve.

FPL's EPU activities and expenditures, as well as its internal processes and controls, are described in more detail below.

## PROJECT MANAGEMENT INTERNAL CONTROLS

**Q. Please describe the EPU project management and organization.**

A. As described below, FPL has robust project planning, management, and execution processes in place. These efforts are spearheaded by personnel with significant experience in project management within the nuclear industry. FPL has a dedicated Nuclear Power Uprate team within the Nuclear Division, responsible for monitoring and managing the uprate project, schedule, and costs. During the initial project team formalization, the organization was largely centralized, with support from smaller EPU Project groups at the respective St. Lucie and Turkey Point Sites. As would be expected, FPL considers and implements the appropriate project management structure

for the various stages of the project. Exhibit TOJ-2, Extended Power Uprate Project Organization Chart, illustrates the organizational structure after it was appropriately modified in July of 2009 as the projects entered a new stage of execution. This organization has reduced the size of the core team in the Juno Beach corporate office, while the majority of the EPU Project organization is now functioning at each of the respective sites. St. Lucie and Turkey Point site Project Directors now report to the Implementation Owner - South, who reports directly to me. This decentralized management structure is appropriate as the EPU Project moves into the implementation phases at each of the sites to better integrate EPU activities with plant operating activities.

There is also a separate Nuclear Business Operations (NBO) group that provides accounting and regulatory oversight for the EPU Project. This organization is independent of the EPU Project team and reports to the Nuclear Controller.

The EPU Project uses guidelines and Project Instructions to assist Project personnel in the performance of their assigned duties. Exhibit TOJ-3, Extended Power Uprate Project Instructions (EPPI) Index is provided to illustrate the types of instructions that are being used. The project instructions do not supersede individual plant, corporate administrative procedures, or corporate policies. These documents provide for consistent application for the EPU Project by the project team at both the St. Lucie and Turkey Point sites.

**Q. Please describe the project planning process for the EPU projects.**

A. The plan for the project includes developing the specifications for long lead equipment as soon as possible to meet scheduled outages. This took place during the years 2007, 2008 and 2009. In parallel with the development of the specifications, we must perform the Nuclear Steam Supply System (NSSS) engineering and prepare the EPU NRC LAR. There are four LARs needed for the EPU Project. There is one LAR for each of the St. Lucie Units, and an AST LAR and an EPU LAR for both of the Turkey Point nuclear units. As planned, FPL completed the Turkey Point Units 3 and 4 AST LAR which was submitted to the NRC on June 25, 2009 for review and approval. Engineering continued on the two EPU LARs for St. Lucie (one for each unit) and the one EPU LAR for Turkey Point Units 3 and 4. The EPU LARs for St. Lucie Unit 1, St. Lucie Unit 2, and Turkey Point Units 3 & 4 are scheduled to be submitted to the NRC in 2010. The NRC review and approval is expected to take approximately 14 months for each EPU LAR. The EPU project team expects to receive and will respond to any NRC LAR Requests for Additional Information (RAIs). Additional plant modifications may be necessary as a result of the NRC LAR reviews.

The EPU modifications implementation schedule identifies the procurement, receipt, and installation timing for each major piece of equipment as well as the planned completion timing of required engineering modifications, all of which are being tracked step-by-step to their completion. In total, the current project schedule includes approximately 185 EPU modifications at FPL's two nuclear sites to be performed in

successive outages for each of the nuclear units. The last outage for the last unit is scheduled to be completed in the fall of 2012. The licensing schedule for NRC approval is based upon when each unit will be in a ready condition to operate at the increased power level. The management team continues to make the necessary adjustments to the project to meet schedules, control costs and maintain appropriate project scope.

In parallel with the engineering analyses for the LARs is the design engineering for the modifications. Each of these modifications is considered a project in and of itself. Design engineering includes inspections, analyses, and the input of multiple disciplines to define the scope. In the case of the major modifications, removal and restoration of equipment removed to allow access to the equipment being modified is required to allow the removal and installation of the EPU modification. The information obtained from the design engineering process is being used in the outage planning process.

**Q. What schedule and cost monitoring controls are currently in place?**

A. FPL utilizes a variety of mutually reinforcing schedule and cost controls, used in an iterative fashion, and draws upon the expertise provided by employees within the project team, employees within the separate NBO group, and executive management. Within the organization of the Vice President, Nuclear Power Uprate is a Controls Group. The Controls Director, along with the EPU Project Controls group at each site, record schedule changes, project delays, and project costs, as well as support risk management and contract administration. FPL's efforts to meet the desired completion

date of each uprate is being tracked through the use of Primavera P-6 scheduling software, enabling FPL to track the schedule daily and update the schedule weekly. This allows management to monitor and report schedule status on a periodic basis. Updates to the schedule and scope of project work can be made as such changes are approved by management.

FPL's use of this system allows management to examine the project status at any time as well as request the development and generation of specialized reports. When FPL identifies a high risk that a scheduled milestone date may be missed, a mitigation plan is prepared, reviewed, approved, and implemented with increased management attention to restore the scheduled milestone date or reduce any impact of missing the scheduled date.

As part of the Project Controls Group there is an Uprate Cost Engineer at each site to monitor and report project costs associated with the Uprate Projects. The Cost Engineer receives contractor invoices and forwards them to technical representatives to ensure the scope of work has been completed and the deliverables have been accepted. For fixed-price contracts, the Cost Engineer matches the invoice amount to the correct amount and the deliverable work received from the subject matter expert, which is then sent to the appropriate personnel for approval and payment. Accruals and variance reports are prepared monthly for each of the sites to monitor and document

expenditures and commitments to the approved budget. Project Controls operates in a transparent manner monitoring and providing project cost and schedule oversight.

**Q. Please describe the NBO group in more detail.**

A. NBO provides accounting and regulatory oversight for the EPU Project. It is independent of the EPU Project team and reports to the Nuclear Controller. NBO's primary responsibilities include:

- Review, approval, and recording of monthly accruals prepared by the Site Cost Engineers;
- Conducting monthly detail transaction reviews to ensure that internal labor costs recorded to the EPU Project are only for those FPL personnel authorized to charge time to the EPU Project;
- Creating monthly variance reports that include cost figures used in the EPU Monthly Operating Performance Report;
- Performing analyses of the costs being incurred by the project to ensure that those costs are appropriately allocated to the correct Capital Expenditure Requisitions established for each nuclear units' outages;
- Assisting in the classification of Property Retirement Units;
- Setup and maintaining the EPU Project account coding structure;
- Providing accounting guidance and training to the EPU Team;
- Working closely with FPL's Accounting and Regulatory Accounting Departments to determine which costs related to the EPU Project are capital and which are O&M;

- Managing internal and external audit requests and ensuring that findings and recommendations are dispositioned, as appropriate; and
- Providing oversight and guidance to the EPU Project Team in development and maintenance of accounting related project instructions to ensure compliance with corporate policies and procedures and Sarbanes Oxley processes.

**Q. What other periodic reviews are conducted to ensure that the project and key decisions are appropriately analyzed and vetted?**

A. Regularly scheduled meetings are held to help effectively manage the uprate project and communicate the performance of the project in terms of quality, schedule and costs. These include the following:

- Daily meetings to share information from each of the projects and to coordinate project activities;
- Weekly project management, project controls, and risk meetings to review the status of the schedule and of project costs, and to identify areas needing attention;
- Biweekly meetings with the Chief Nuclear Officer, Project Vice President, Project Directors and Leads to review project progress and work through any identified risks to schedule or costs;
- Routine, usually monthly, FPL Executive Steering Committee meetings where project management presents the status of the project. Strategy discussions take place to help improve management of risk areas;
- Monthly Project Meetings involving FPL and individual major vendors during which the project schedules and challenges are discussed; and

- Quarterly Project Meetings involving FPL and its major vendors during which strategy discussions take place to help improve management of risk areas.

The EPU Project produces several reports. Exhibit TOJ-4, Extended Power Uprate Project Reports, is a listing of reports generated by the project with a brief description, the periodicity, and the intended audience of each report. Generally, the project reports provide a status of the project, scope changes, schedule and cost adherence/variance, safety, quality, risks, risk mitigation, and a path forward as appropriate. The information provided by these reports assists in the overall management of the EPU Project.

Additionally, the project is annually reviewed to assess its continued economic feasibility. This analysis is conducted in a similar manner to the analysis that supported the affirmative need determination by the Commission, but it is updated to reflect engineering progress and what is currently known regarding project scope and project cost, project schedule, and the cost and viability of alternative generation technologies. The analyses presented by FPL Witness Sim in 2008 and 2009 demonstrated that the EPU project continued to present a significant economic advantage in a majority of fuel, electric demand forecasting, and environmental compliance cost scenarios. An updated feasibility analysis will be provided on May 1, 2010.

**Q. Please describe the risk management process for the EPU project.**

A. FPL's risk management process, in addition to the schedule and budget controls described above, is used to identify and control potential risks associated with the uprates. A Project Risk Committee, consisting of site project directors and subject matter experts reviews and evaluates initial cost and schedule projections and any potential significant variances. This committee enables senior managers to critically assess and discuss risks faced by the EPU projects from different departmental perspectives. The committee also ensures that actions are taken to mitigate or eliminate identified risks. When an identified risk is evaluated as high, a risk mitigation action plan is prepared, approved, and executed. The high risk item is monitored through this process until it is reduced or eliminated. An EPU Project Risk Management report is presented to senior management in bi-weekly and monthly meetings, identifying potential risks by site, unit, priority, probability, impact, economic cost, and the unit or persons responsible for mitigating or eliminating the risk. These steps ensure continuous, vigilant identification of and response to potential project risks that could pose an adverse impact on cost or schedule performance.

## PROCUREMENT PROCESSES

**Q. Please describe the contractor selection and contractor management procedures that apply to the EPU projects.**

A. The contractor selection procedures applicable to the uprate project are found in General Operating Procedure 705 and Nuclear Policy NP-1100, Procurement Control.

As explained in those policies, the standard approach for the procurement of materials or services with a value in excess of $25,000 is to use competitive bidding. During 2009, a majority of the equipment and work contracted out for the EPU project was competitively bid. However, the use of single source, sole source, and Original Equipment Manufacturer (OEM) providers is also necessary in certain situations. These policies require proper documentation of justifications and senior-level management approval of single or sole source procurements.

Over the course of 2009, and in response to considerations raised by the Commission in the 2008 NCRC proceedings, FPL identified opportunities to improve upon the documentation of its procurement practices and began implementing enhanced measures late in 2008. FPL has maintained its' focus on the process of documenting and approving single and sole source procurements, to ensure compliance with NP-1100 and to facilitate review by third parties who are not directly involved in the nuclear procurement process. Training is provided to personnel responsible for having Single and Sole Source Justifications (SSJs) prepared, the SSJ expectations are included in appropriate project instructions, and all new applicable personnel assigned to the EPU Project are required to review the SSJ expectations.

With respect to contractor management, the EPU Project Directors at each site assure vendor oversight is provided by the Site Senior Project Managers, Project Managers, the site Technical Representative, and Contract Coordinators. Together, these

representatives provide management direction and coordinate vendor performance reviews while the vendors are on site. The Site Technical Representative verifies that the vendor has met all obligations and determines whether any outstanding deliverable issues exist using a Contract Compliance Matrix. In addition to assisting with the development and administration of contracts, Nuclear Sourcing and Integrated Supply Chain (ISC) groups complete weekly updates as necessary to a Project Contract Log and report the status of contracts to project management.

**Q. What is FPL's approach to contracting for the EPU project?**

A. FPL structures its contracts and purchase orders to include specific scope, deliverables, completion dates, terms of payment, commercial terms and conditions, reports from the vendor, and work quality specifications. Project management has several types of contracts available depending on how well the scope of work can be defined and the risk associated with the work scope. Fixed price or lump sum contracts are used where practical. An example would be where project work scope is well-defined and risk is limited. Project Management will use a time and material contract where project work scope is not well-defined and where there is greater risk to completing the work scope. Additionally, subject to certain limitations, a target price contract may be used. A "target price contract" is one in which a target price is agreed upon after some initial portion of the work has been performed. If the vendor completes the work for less than the target price, the vendor and FPL will share the difference between the target price and the actual cost such that both parties and FPL's customers benefit from the cost savings achieved. If the actual cost of the modification exceeds the target price,

the vendor only gets a portion of the difference between the target and the overrun. These and other contract provisions help ensure that the contractors perform the right work at the right time for the right price.

**Q. Does FPL work to include industry best practices for the EPU project into the work being performed?**

A. Yes. For example, the FPL project team members participate in Nuclear Industry working groups organized by the Institute of Nuclear Plant Operators (INPO) and the Nuclear Energy Institute (NEI) and benefit from lessons learned. This is supplemented with direct engagement with our industry peers through benchmarking trips to other nuclear sites which have performed similar scopes of work to incorporate best practices. These sources help ensure that project decisions are supported by the best information currently available.

## INTERNAL/EXTERNAL AUDITS AND REVIEWS

**Q. Are FPL's financial controls and management controls audited?**

A. Yes. Several audits have been conducted to ensure compliance with applicable project controls. Internal Auditing performed a financial audit in 2008, and FPL is in the process of performing an internal audit of 2009 project costs to ensure that those costs were appropriately recorded. FPL has also engaged Concentric Energy Advisors to conduct a review and to report on the adequacy of, and compliance with, the project management controls described above. These audits and management review reports

will be provided for Commission review upon completion. Additionally, the Commission Staff audited FPL's financial and management controls in 2008 and 2009.

## 2009 PROJECT ACTIVITIES

**Q. What key activities occurred in 2009 in execution of the uprate projects?**

A. Several key activities occurred in 2009, including: (i) modification of the EPU Project management organization; (ii) continued engineering evaluation and analyses in support of license amendment preparation and submittals for NRC approval; (iii) the progress of activities and quality inspections related to the manufacture of long lead equipment for the EPU Project; (iv) management and implementation of the EPC contract, concentrating on engineering the modifications for the upcoming outages in 2010 and 2011; (v) detailed reviews of the modification installation planning and EPU outage modification assignments; and (vi) maintenance of project plans and procedures and continuation of project staffing.

**Q. Please describe the project organizational changes that were made in more detail.**

A. FPL considers and implements the appropriate project management structure for the various stages of the project. The organizational structure was modified in August of 2009 as the project entered a new stage of execution as illustrated on Exhibit TOJ-2, Extended Power Uprate Project Organization Chart. The organization was changed to a small core leadership group with the majority of the EPU Project organization functioning at each of the respective sites where the uprates must ultimately be

implemented. The FPL Directors and Managers report directly to me, the Vice President, Nuclear Power Uprate. The Controls Director has Managers at each of the projects that are responsible for cost and schedule at their respective sites. The Implementation Owner - South has three reports, the St. Lucie and Turkey Point EPU Project Directors and a Technical Support Director. There is an Engineering LAR Director with engineering organizations at each site.

Each EPU Site Director has an EPU organization for the efficient and effective engineering and implementation of the EPU Project modifications needed to support the nuclear units during the uprate work. The Site project teams, under the project director, have greater accountability and responsibility, and more direct control of their respective projects.

**Q. Is the Project Management structure appropriate for this phase of the EPU Project?**

A. Yes. The 2009 management structure is appropriate as the EPU Project moves into the implementation phases at each of the sites. These changes permit EPU project personnel to more efficiently integrate with the site unit staff for planning and scheduling the installation of EPU modifications. These activities include, but are not limited, to the following:

- arrival and safe storage of EPU components and equipment,
- any baseline inspections or testing needed in support of the EPU project,

- direct management and oversight of the EPC contractor and other vendors used in preparing engineering modifications or specification development,
- FPL engineering reviews and acceptance of vendor prepared documents,
- work order planning of the modifications,
- implementation of the modifications,
- accurate accounting for the EPU costs being incurred, and
- development of scope changes necessary for the success of the EPU Project.

**Q. What types of regulatory approvals were received or sought in 2009?**

A. In addition to the Nuclear Cost Recovery submittals to the Commission, FPL submitted to the NRC the AST LAR for Turkey Point Units 3 and 4 on June 25, 2009. The NRC accepted the AST LAR for review on September 25, 2009, and the review and approval process is expected to take approximately 12 months. The AST LAR included uprate conditions information and was required by the NRC prior to submitting the EPU LAR. The potential exists that additional EPU project scope may be required as a result of the NRC review process.

The Site Certification Application (SCA) for Turkey Point Units 3 and 4 was approved by the Florida Department of Environmental Protection (FDEP) on October 29, 2008. Agreement on the Conditions of Certification (CoC) for the Turkey Point SCA was reached on October 14, 2009 with the South Florida Water Management District (SFWMD).

**Q. What types of licensing or permitting activity took place in 2009?**

A. The main licensing activity for both St. Lucie and Turkey Point continues to be the engineering analyses and preparations for submittal of the LARs to the NRC and responding to NRC RAIs. There are two LAR submittals for Turkey Point, the AST LAR, and the EPU LAR. Two EPU LARs are required for St. Lucie (one for each unit), due to the differences in the plant design bases and nuclear fuel of the units. Work was conducted in 2009 to support the planned submittal of the EPU LARs for St. Lucie Unit 1, St. Lucie Unit 2, and Turkey Point Units 3 & 4 in 2010.

**Q. Please describe the engineering analyses in support of License Amendment Requests in more detail.**

A. The EPU LARs contain nuclear fuels, mechanical, electrical, chemical and material engineering evaluations required for NRC review and approval of the uprated condition. For example, the engineering analyses conducted in 2009 included a review of the NSSS design bases using the power uprate parameters to ensure the original design safety margins could be maintained or are not challenged when a plant is operated in the uprate condition.

**Q. Who is performing these analyses?**

A. Engineering analyses for the St. Lucie and Turkey Point EPU LARs are being performed by the following major organizations: Westinghouse, which is an OEM for the NSSS and is one of the fuel suppliers; Shaw Stone & Webster, which is performing the secondary or Balance of Plant (BOP) analyses; Areva, which is an OEM for portions of the NSSS and is one of the fuel suppliers; and FPL, which reviews engineering materials prepared by the contracted companies,

**Q. Please describe the progress of activities and quality inspections related to the manufacture of long lead equipment for the EPU Project in more detail.**

A. Significant progress was made in 2009 on the manufacturing of the turbine closed cooling heat exchangers, high pressure (HP) feedwater heat exchangers, moisture separator reheaters, main feedwater pumps, feedwater heat exchangers, main condensers, turbine plant cooling water heat exchangers, feedwater isolation valves, and other components. The St. Lucie main turbine low pressure (LP) rotors were forged and machined in 2009. Exhibits TOJ-6 through TOJ-8 are pictures of the manufacturing process for the St. Lucie LP Rotor and illustrate the size and nature of these major forgings. Exhibit TOJ-5 is a picture illustrating a typical forging of a LP turbine rotor. Exhibit TOJ-6 is a picture of the machined St. Lucie LP turbine rotors. Exhibit TOJ-7 is a picture of the St. Lucie LP turbine rotor rings that will hold the turbine blades.

FPL Quality Assurance (QA) personnel witnessed various portions of the manufacturing process and perform vendor audits of the manufacturer's processes to ensure vendor quality control processes are adhered to and specifications are being met. For example, Exhibit TOJ-8 is a picture of a vendor technician performing ultrasonic testing to detect material defects in one of the St. Lucie LP turbine rotor rings. This process was witnessed by FPL QA personnel. QA verified that the individual performing the testing was qualified to operate the equipment and perform

the testing and that the instrumentation was properly calibrated. QA prepares reports of their inspections/audits.

Regarding long lead procurement, the engineering analysis was completed for major equipment and components. Several increased capacity heat exchangers, pumps, and motors were specified and contracted for in 2009. Adjustments to the milestone payments for some of the long lead equipment items resulted in fewer payments being made in 2009 and orders for equipment were rescheduled as a result of the adjusted outage modification assignments.

For example, when the competitive bidding technical evaluation was completed for the heat exchangers the technically qualified bidders were asked if including more equipment in the bid request would result in additional cost savings to FPL. The response was yes. Through the inclusion of the moisture separator reheaters into the request for proposal the cost savings amounted to over $2 million.

**Q. Please describe the management and execution of the EPC contract.**

A. Throughout 2009, the EPC vendor performed the staffing ramp up to begin the modification packages engineering. EPC vendor personnel were involved in the integration of their documents and work products which included engineering and implementation schedules and preliminary estimates. Additionally, EPC vendor personnel were involved in adjusting the outage modification assignments. These

adjustments required revising the priority of the preparation of the modification packages.

Exhibit TOJ-9, Plant Change or Modification (PCM) Status, is a chart that illustrates the number of currently identified engineering modifications at the St. Lucie and Turkey Point sites, the number of PCMs that have been initiated, and those that have reached 30%, 90%, and final completion. A PCM will include as necessary the mechanical, electrical, civil, instrumentation and control, and nuclear requirements for removing interferences, installing and pre-operational or operational testing of the equipment as appropriate. As can be seen, of the currently identified 185 total modifications, 75 are for St. Lucie and 110 are for Turkey Point. The reason for the differences in the number of plant modifications needed are the plants, St. Lucie and Turkey Point, are different and require different modifications to support the power uprate conditions. Approximately 78 PCMs have been initiated by engineering and have progressed to less than 30% complete. Approximately 26 PCMs are between 30% and 90% complete. Approximately 8 are between 90% and finalized. Approximately 4 are approved for implementation. This exhibit also shows the Project is in the very early stages of the implementation engineering. When a PCM nears completion a more definitive cost for the modification can be estimated for use in project management and budgeting.

**Q. Please describe the modification installation planning and EPU outage modification assignments performed by project personnel in more detail.**

A. Exhibit TOJ-10, Extended Power Uprate Project Schedule as of December 31, 2009, illustrates the LAR, long lead material, engineering design, and implementation schedule for the EPU Project. This is the current high level schedule depicting the major activities of the EPU Project. In order to have a sense of the amount of uprate work summed up in this high level schedule, currently about 43,000 scheduled activities make up the EPU Project schedule for the LAR, long lead equipment, design, modification and implementation. These schedule activities provide a roadmap for the project. Each of the areas is integral with the other areas. Activities are logic-tied to ensure a sequence of activities needed to support a future activity are completed prior to the future activity starting or completing as required. Many activities are performed in parallel while some require completing activities in series. An example of parallel activities would be manufacturing of a long lead equipment item at the same time the implementation modification engineering starts. An example of series activities would be completion of a component engineering evaluation with component specifications which needs to be completed before the component can be ordered and manufactured. Highlights of Exhibit TOJ-10 are:

- The LAR analyses are scheduled to be completed and submitted to the NRC with sufficient time for an extended NRC review before the license amendment approval is needed by FPL to increase the power output at the completion of the second EPU outage for each of the units.
- Long lead material items are scheduled to arrive on site prior to the outage during which the equipment will be installed.

- PCM engineering design for each of the 185 identified modifications is scheduled to be approved for implementation prior to the unit outage when each modification will be implemented.
- Implementation of the EPU modifications is scheduled to be completed during the scheduled refueling outages for each of the units. The EPU outage modification assignments were adjusted with the objective of reducing outage risk. These adjustments are described below.

In 2009 the project team analyzed which modifications should be performed in which outages based on the long lead equipment schedule for delivery, the sequencing of the outages, vendor capabilities, and the amount of EPU modification work that was proposed for each outage. Discussions took place with executive management, each of the site's outage and operations management, FPL's nuclear fuels department, the major equipment suppliers, and the EPC vendor to determine the impact of changing the implementation sequence of EPU modifications. This resulted in FPL's current set of revised outage modification assignments for the installation of EPU modifications.

There are some risks associated with adjusting outage modification assignments including the need to accommodate any additional modifications that result from the NRC's LAR review and the ability of the project vendors to integrate outage sequencing with their other work commitments. But there are several potential benefits to the adjusted outage modification assignments as well. The outage

modification assignments may permit an earlier increase in the electrical generation from one of the units, and may also reduce total off-line time which benefits customers through total cost savings. There is more time for developing the EPU engineering modifications and installation packages for the modifications implemented in the second outage for each unit. The site implementation teams will enhance outage implementation performance during the initial EPU outages with limited scope in preparation for the subsequent EPU outages with more scope. As the LAR reviews, design engineering, and implementation planning progress, additional changes to outage modification assignments will occur.

## 2009 CONSTRUCTION COSTS

**Q. What type of costs did FPL incur for the uprate projects in 2009?**

A. As demonstrated in Exhibit TOJ-1, Schedule T-6 and T-4, and summarized on Exhibit TOJ-11, Tables 1 through 9, costs were incurred in the following categories: License Application; Engineering and Design; Permitting; Project Management; Power Block Engineering, Procurement, Etc.; Non Power Block Engineering, Procurement, Etc.; and Recoverable O&M. These costs were the direct result of the prudent project management and decision making described in detail above. Each category reflects some variance against what was originally estimated and budgeted, which is to be expected, particularly given the relatively early stage of the project. This variance in 2009 is reflective of reduced payments for long lead equipment items and adjustments

to engineering and EPC contractor resources. Additionally, the adjusted EPU outage modification assignments enabled adjustments to staff resources for 2009. Staffing levels will be increased in 2010 and 2011 to provide appropriate staffing for the EPU long duration outages. Exhibit TOJ-11, 2009 Extended Power Uprate Construction Costs contains summaries of the EPU expenditures in 2009 for each of the NFR schedule categories. Table 1 is a summary of each of the categories showing the actual expenditure amounts.

**Q. Please describe the costs incurred in the License Application category and the variance, if any, from the 2009 actual/estimated costs in this category.**

A. Exhibit TOJ-11, Table 2. 2009 Licensing Costs, consist primarily of charges for consulting and contractor services rendered in support of preparing the NRC LAR. The primary contractors are Westinghouse, Areva and Shaw Stone & Webster. The LAR contains the nuclear fuels, mechanical, electrical, chemical and material engineering evaluations of the units for NRC review and approval of the uprated condition. This process for requesting and approving a change to a plant's power level is governed by the Code of Federal Regulations. FPL incurred $66.9 million in this category in 2009, which was $7.9 million more than the actual/estimated amount. This was primarily attributable to more analyses than expected and a longer period of contractor mobilization in performing the NSSS/Fuel Engineering. The longer period of mobilization and the increased quantity of analyses are due to additional scope identified during the initial phases of these evaluations.

**Q. Please describe the costs incurred in the Engineering and Design category and the variance, if any, from the actual/estimated costs in this category.**

A. Exhibit TOJ-11, Table 3. 2009 Engineering & Design Costs, consist primarily of costs for FPL personnel and contractor personnel in the FPL engineering organizations at both sites and in the central organization. Some of these personnel provide management, oversight and review of the LAR activities, while others are oriented towards management, oversight and review of the detail design activities being performed by the EPC contractor. FPL incurred $12.6 million in this category in 2009, which is $1.9 million more than the actual/estimated amount. This was primarily attributable to LAR scope growth and actual costs required to manage the EPC contractor engineering effort.

**Q. Please describe the costs incurred in the Permitting category and the variance, if any, from the actual/estimated costs in this category.**

A. Exhibit TOJ-11, Table 4. Permitting Costs, are primarily attributable to the State of Florida Site Certification Application for the St. Lucie and Turkey Point sites. This consists primarily of consulting services related to environmental work for site certification and compliance certification, and FPL employee support. FPL incurred $512,725 in this category in 2009, which was $410,295 more than the actual/estimated amount. This was primarily attributable to more than expected costs to reach closure on the manner in which FPL would comply with the CoC for the Turkey Point SCA. Specifically, resources were required to develop the scope of the Turkey Point Cooling Canal monitoring program required by the CoC.

**Q. Please describe the costs incurred in the Project Management category and the variance, if any, from the actual/estimated costs in this category.**

A. Exhibit TOJ-11, Table 5. Project Management Costs, relate to overall project oversight including project management, scheduling, project controls and non-NRC regulatory compliance. These oversight activities are performed by personnel located at both sites; and by the EPU central organization and by non-EPU organizations such as NBO, New Nuclear Accounting, and Regulatory Affairs. FPL incurred $15.5 million in this category in 2009 which was $4.7 million less than the actual/estimated amount. This was primarily attributable to the reorganization and movement of more field management responsibilities to the EPC vendor. In addition, the ramp up of owner organization staff was revised to support the adjusted outage modification assignments.

**Q. Please describe the costs incurred in the Power Block Engineering, Procurement, Etc. category and the variance, if any, from the actual/estimated costs in this category.**

A. Exhibit TOJ-11, Table 6. Power Block Engineering Procurement, etc. Costs, lists the costs incurred in this category. The majority of the costs continued to be for milestone payments for long lead equipment items. This includes payments to Siemens for turbines and generator rotors, and TEI for feedwater heaters and moisture separator reheaters, main condensers, and increased capacity heat exchangers and pumps required to support the uprate conditions. Costs also included the EPC vendor contract for the engineering and design of modifications of currently identified project scope.

In addition, FPL completed the modifications to the St. Lucie Unit 2 Turbine Gantry Crane in 2009 and incurred most of the expected project costs. On December 4, 2009, FPL filed a petition to include costs associated with the uprate project in base rates.

FPL incurred $141.2 million in this category in 2009 which is $26.6 million less than the actual/estimated amount. The majority of the variance is attributable to less than expected utilization of the EPC contractor and deferral of some milestone payments to vendors for the long lead procurement equipment. A contributing factor was the adjusted outage modification assignments which moved some plant modifications between the outages. In 2009, this resulted in a less intensive EPC engineering effort and a less pronounced EPC organization ramp up, and later delivery requirements for certain major equipment. Further outage modification adjustments will be necessary as the LAR reviews, design engineering, and implementation planning activities progress.

**Q. Please describe the costs incurred in the Power Block Engineering, Procurement, Etc. category for the completed modifications to the St. Lucie Unit 2 Turbine Gantry Crane in this category.**

A. The St. Lucie (PSL) Unit 2 Turbine Gantry Crane upgrade field implementation was started in August 2009. Performance testing was completed and the PSL Unit 2 Turbine Gantry Crane was placed in service on December 22, 2009.

The St. Lucie Plant has two Turbine Gantry Cranes (TGC), one for each unit. During the initial evaluations of the proposed schedule for implementation of the EPU

modifications, the TGC activities became the critical path during implementation of the EPU modifications. An engineering evaluation of each TGC was performed resulting in proposed modifications to each crane for increased efficiency in removing and installing the many pieces of heavy equipment requiring precise movements. Based on this evaluation modifications are being made to each TGC. The modifications to each TGC can be performed during normal plant operation, saving plant outage time. The modifications were performed on the PSL Unit 2 TGC. Some of the modifications performed included installing bridge and trolley motors and hoists capable of infinite speed control from the operator's cab or from a pendant control that can be used by the crane operator outside of the cab on the turbine deck at the same level as the load being moved.

There was no salvageable equipment for the Unit 2 Turbine Gantry Crane. The cost of the PSL2 Gantry Crane upgrades was $2,856,822, as reflected in Appendix I-A of Exhibit TOJ-1. On December 4, 2009, FPL filed a petition with the Commission to include the St. Lucie Unit 2 Turbine Gantry Crane modification costs associated with the EPU Project in Base Rates (Docket No. 090529-EI).

**Q. Please describe the costs incurred in the Non-Power Block Engineering, Procurement, Etc. category and the variance, if any, from the actual/estimated costs in this category.**

A. Exhibit TOJ-11, Table 7. Non-Power Block Engineering Costs, consist primarily of costs for facilities for engineering and project staff at site locations and the simulator

upgrades required to support the uprate conditions. FPL incurred $535,251 in this category in 2009. This represents $445,101 more than the actual/estimated amount. This variance is primarily attributable to costs for the simulator modifications being incurred earlier than planned. Simulator modifications are necessary to reflect plant operations as they must be conducted in the uprate conditions.

**Q. Please describe the costs incurred as Recoverable O&M.**

A. Exhibit TOJ-11, Table 8 and the T-4 schedule presents the Recoverable O&M being submitted for 2009, in the amount of $498,077. This represents a variance of $69,923 less than the actual/estimated amount. Consistent with FPL's capitalization policy, the commodities that make up these expenditures consist primarily of non-capitalizable computer hardware and software, and office furniture and fixtures needed for new project-bound hires, incremental staff, and augmented contract staff, all of which are segregated for EPU Project personnel use only. In addition, with the completion of the St. Lucie Unit 2 Turbine Gantry Crane modification in late 2009, Recoverable O&M also includes the write-off of inventory rendered obsolete because of EPU modifications. Through 2009, $18,864 in inventory has been written off.

**Q. Please describe the costs incurred in the Transmission category.**

A. Exhibit TOJ-11, Table 9. Transmission Costs, presents the costs being submitted for 2009, in the amount of $368,559. The expenditures in Transmission included line engineering, substation engineering, and line construction. The cost is $659,565 less than the actual/estimated amount. The variance is due to the initial substation engineering cost estimates that were based on aggressive scheduling of construction

activities in 2010. During 2009 we revised the start of several substation construction activities initially scheduled for 2010 to outages scheduled for 2011 and 2012. This resulted in substation engineering costs being moved from 2009 to 2010. Part of the transmission line engineering and construction scheduled during PSL 2 Spring, 2009 outage was deferred to PSL 1 Spring, 2010 outage.

## "SEPARATE AND APART" CONSIDERATIONS

**Q. Would any of the above costs that you described have been incurred if the FPL nuclear generating units were not being uprated?**

A. No. The construction costs and associated carrying charges and recoverable O&M expenses for which FPL is requesting recovery through the NCRC process were caused only by activities necessary for the uprate projects, and would not have been incurred otherwise. I note that as explained in FPL Witness Powers' testimony and schedules, only carrying costs and recoverable O&M expenses are requested for recovery for the EPU Projects, consistent with the Commission's NCRC rule and procedures.

**Q. Please explain the processes utilized by FPL to ensure that only those costs necessary for the implementation of the uprates are included for NCRC purposes.**

A. FPL conducted engineering analyses to identify major components that must be modified or replaced in order to enable the units to function safely and reliably in the uprated condition. However, as inspections, LAR engineering analyses, and design engineering modifications are performed, the need for additional modifications or

replacements necessary for the uprate may be identified. Likewise, it may be determined that certain modifications previously identified as necessary to the uprate project are determined not to be necessary for the uprate and can be removed from the scope. An example is the deletion of the St. Lucie Circulating Water Pump modifications.

Further, FPL considered whether any of the major component modifications or replacements required for the uprates were already required as a condition of receiving its NRC license renewals. FPL reviewed the "License Renewal Action Items" issued by the NRC and compiled by FPL in conjunction with the approval of FPL's requested license renewals. In doing so, it verified that none of the major component modifications or replacements identified by FPL as necessary for the EPU project was duplicative of the activities required by the NRC for license extension. FPL also reviewed the seven year capital expenditure plan for the Nuclear Division to determine that none of the EPU activities were previously planned as regular O&M or capital improvement. Additionally, when a scope change is required, a review of the NRC License Renewal Action Items and the seven year capital expenditure plan is conducted to ensure the proposed scope change is separate and apart. FPL has confirmed that the 2009 EPU activities, and their associated costs, were "separate and apart" as required by the NCRC process. Exhibit TOJ-12, Extended Power Uprate Equipment List, provides a listing of the equipment modifications or replacements, a description as to why it is needed for the uprate conditions, current vendors and

contract Purchase Orders (PO) where available and the source document containing the equipment modification or replacement.

## CONCLUSION

**Q. Were FPL's 2009 EPU expenditures prudently incurred?**

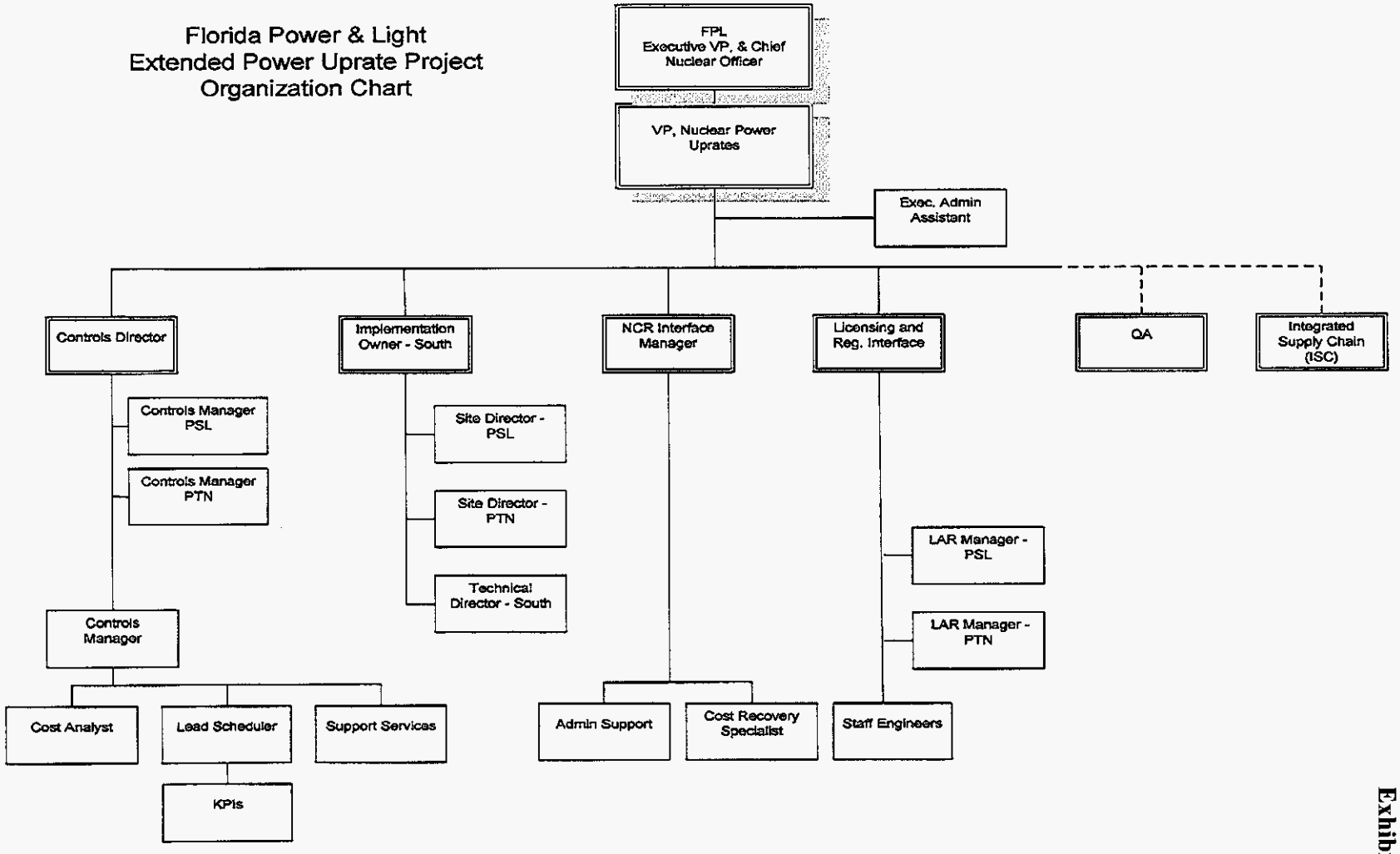
A. Yes. FPL incurred capital expenditures totaling approximately $237 million and Recoverable O&M totaling approximately $0.5 million in 2009. These expenditures were necessary so that the uprate work can be performed during the planned outages or, in the case of certain long lead procurement items, were incurred to take advantage of cost savings opportunities. Through experienced personnel's application of the robust internal schedule and cost controls, and the use of the internal management processes, FPL is confident that its EPU management decisions are well-founded and prudent. All of the costs incurred in 2009 were the product of such decisions and should be approved.

**Q. Does this conclude your direct testimony?**

A. Yes.

**Appendix I is in a separate book**

Florida Power & Light
Extended Power Uprate Project
Organization Chart




Docket No. 100009-EI
EPU Organization Chart
Exhibit TOJ-2, Page 1 of 1

# Extended Power Uprate Project Instructions (EPPI) Index

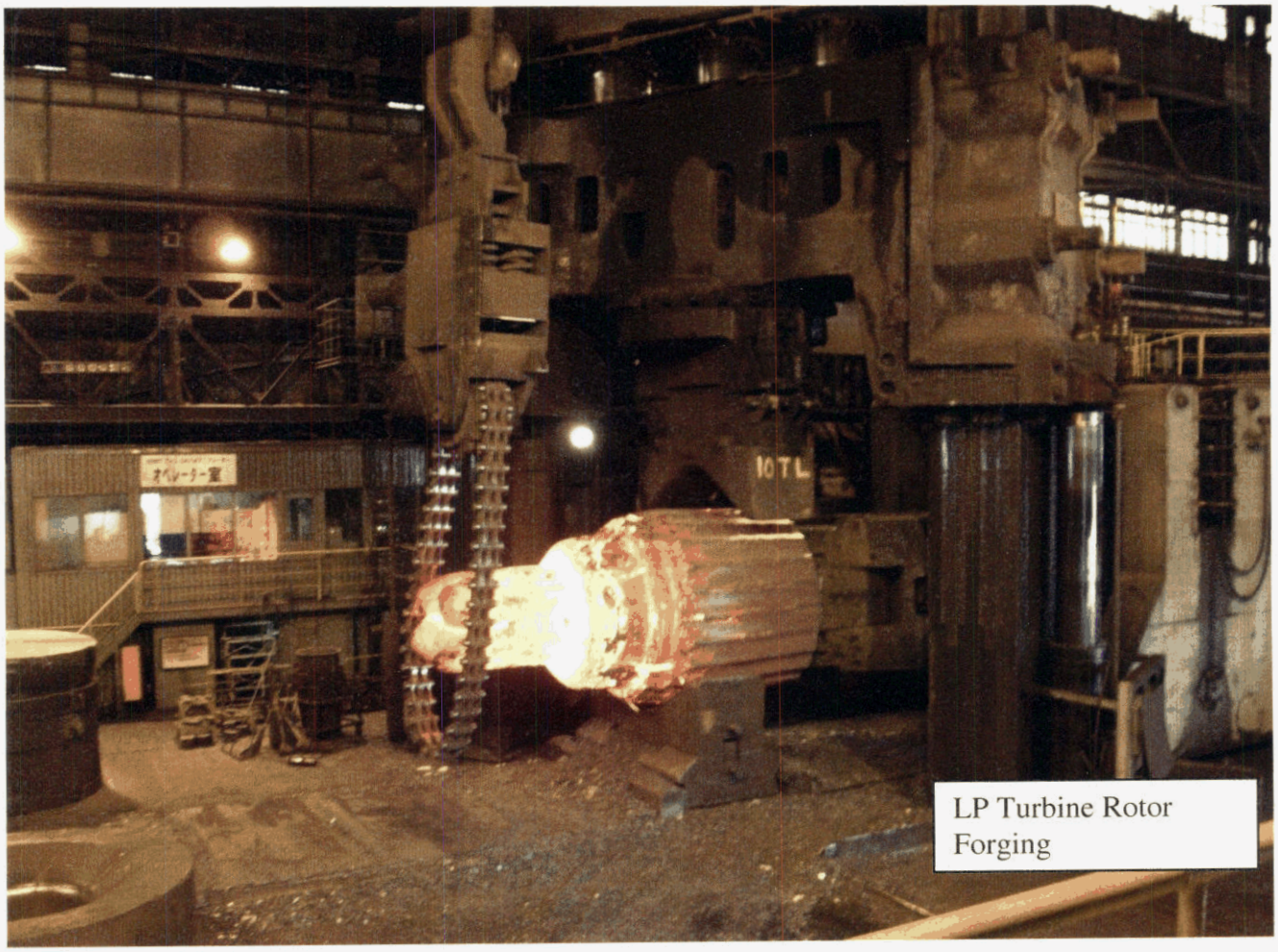
| Title | EPPI # | Revs | Issued |
|---|---|---|---|
| **Project Administration** | **100** | | |
| Project Instruction Preparation, Revision, Cancellation | 100 | R3 | 8/27/2009 |
| EPU Project Expectations & Conduct of Business | 110 | R16 | 1/29/2010 |
| EPU Project Contractor Staffing | 130 | R4 | 1/29/2010 |
| Roles & Responsibilities | 140 | R9 | 11/17/2009 |
| EPU Project-Nuclear Business Ops Interface | 150 | | 7/9/2008 |
| EPU Project Formal Correspondence | 160 | R2 | 9/18/2009 |
| Time and Expense Reporting to FPLE Support | 170 | R1 | 1/28/2010 |
| EPU Nuclear Cost Recovery | 180 | R0 | 12/7/2009 |
| **Procurement** | **200** | | |
| Project Requisition and Purchase Order Process | 220 | R1 | 3/31/2008 |
| Project Invoice Process Instructions | 230 | R3 | 1/29/2010 |
| EPU Contract Compliance Program | 240 | R3 | 1/28/2010 |
| Preparation of Installation Services Specifications | 250 | R1 | 7/7/2008 |
| **Project Controls** | **300** | | |
| Project Scope Control Process | 300 | R4 | 12/28/2009 |
| Development, Maintenance, and Update of Schedules | 310 | R4 | 3/10/2009 |
| Cost Estimating | 320 | R1 | 6/24/2009 |
| EPU Project Risk Management Program | 340 | R2 | 9/18/2009 |
| EPU LAR Engineering Risk Management | 345 | | 4/28/2009 |
| FPL Accrual Process | 370 | R2 | 3/17/2009 |
| Project Self Assessment | 380 | R1 | 10/13/2009 |
| Dormant Material Expense (DME) | 390 | | 9/11/2008 |
| **Project Management** | **400** | | |
| EPU Testing Guidelines | 445 | | 4/23/2009 |
| **Project Training** | **500** | | |
| EPU Project Personnel Training Requirements | 520 | R1 | 12/19/2008 |
| EPU Project Qualification Guidelines | 560 | R2 | 1/28/2010 |
| **Quality, Engineering & Licensing** | **600** | | |
| EPU Uprate License Amendment Request | 610 | R2 | 5/26/2009 |
| **Saint Lucie Specific** | **800** | | |
| St. Lucie EPU Project Severe Weather Preparation | 810 | R1 | 5/27/2009 |
| EPU Project Environmental Control Program PSL | 820 | R00 | 11/12/2009 |
| **Turkey Point Specific** | **900** | | |
| Turkey Point EPU Project Severe Weather Preparations | 910 | | 7/15/2008 |
| EPU Project Environmental Control Program PTN | 920 | R00 | 11/12/2009 |

Extended Power Uprate Project Reports

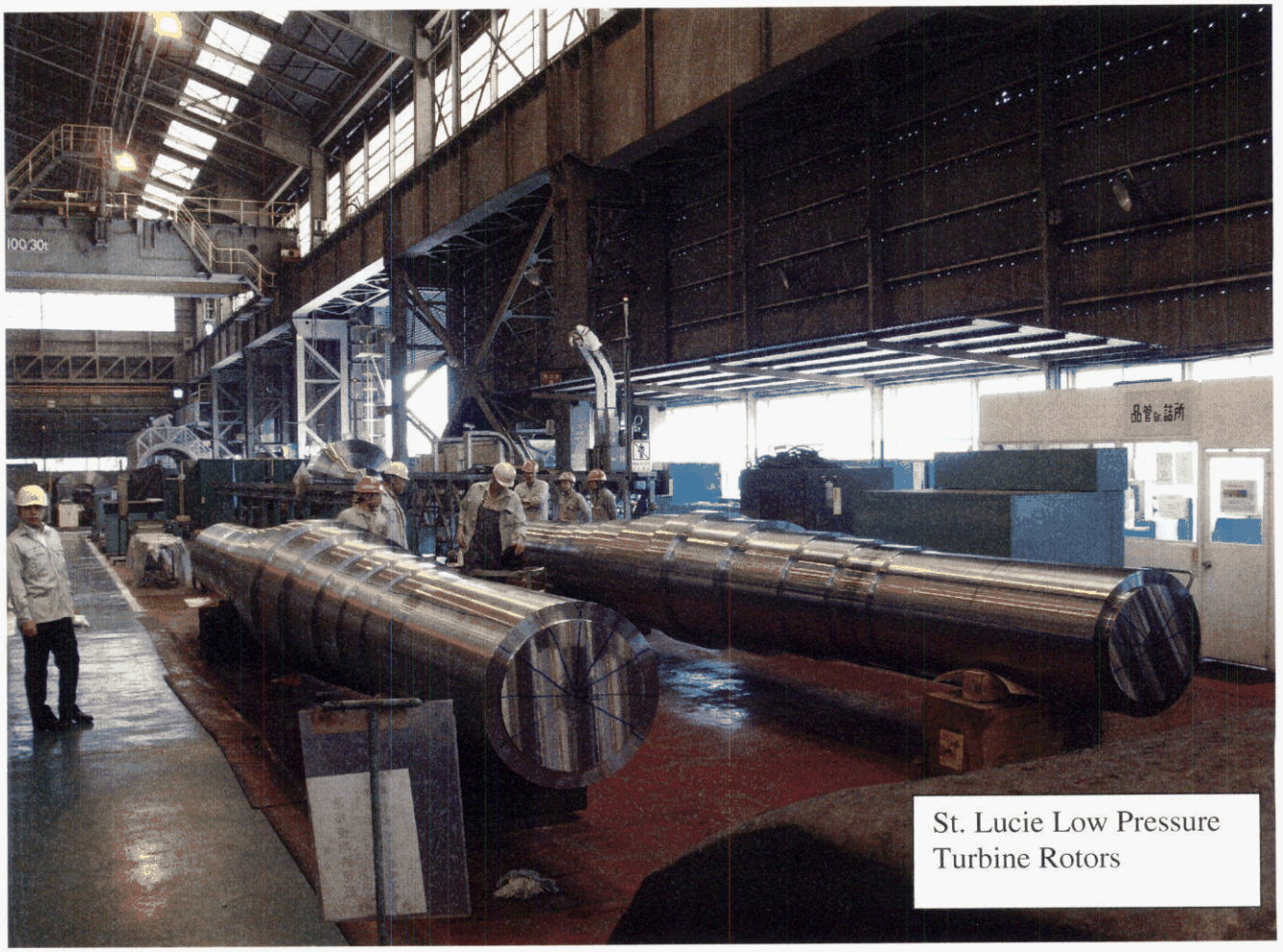
| REPORT | REPORT DESCRIPTION | PERIODICITY | AUDIENCE |
|---|---|---|---|
| PSL, PTN Daily Report | Activities scheduled within the next six weeks | Daily | All project staff personnel, project management and project controls |
| Executive VP & Chief Nuclear Officer Presentation | Project Indicators, Timeline, Risk Summary, Status, LAR Challenge List, Priorities, Open Action Items | Approx. Weekly | Executive Vice President & Chief Nuclear Officer and other invited guests |
| PSL, PTN, Accrual Report | Document accruals for each EPU Site, Vendor, Amount, Purchase Order, Remarks, References | Monthly | Nuclear Business Operations, Corporate Accounting, EPU Project Management |
| PSL, PTN Variance Report | Cost Actuals, Budgets and Forecasts for Operations and Maintenance and Capital Expenditures | Monthly | Nuclear Business Operations, Corporate Accounting, EPU Project Management |
| PSL, PTN, Monthly Operating Performance Report (MOPR) | Dashboard of EPU Project, Scope Definition, Execution Plan, Resources, Cost, Schedule, Quality, Safety, Environmental, Licensing, Regulatory | Monthly | Executive Management, EPU Project Management |

# Extended Power Uprate Project Reports

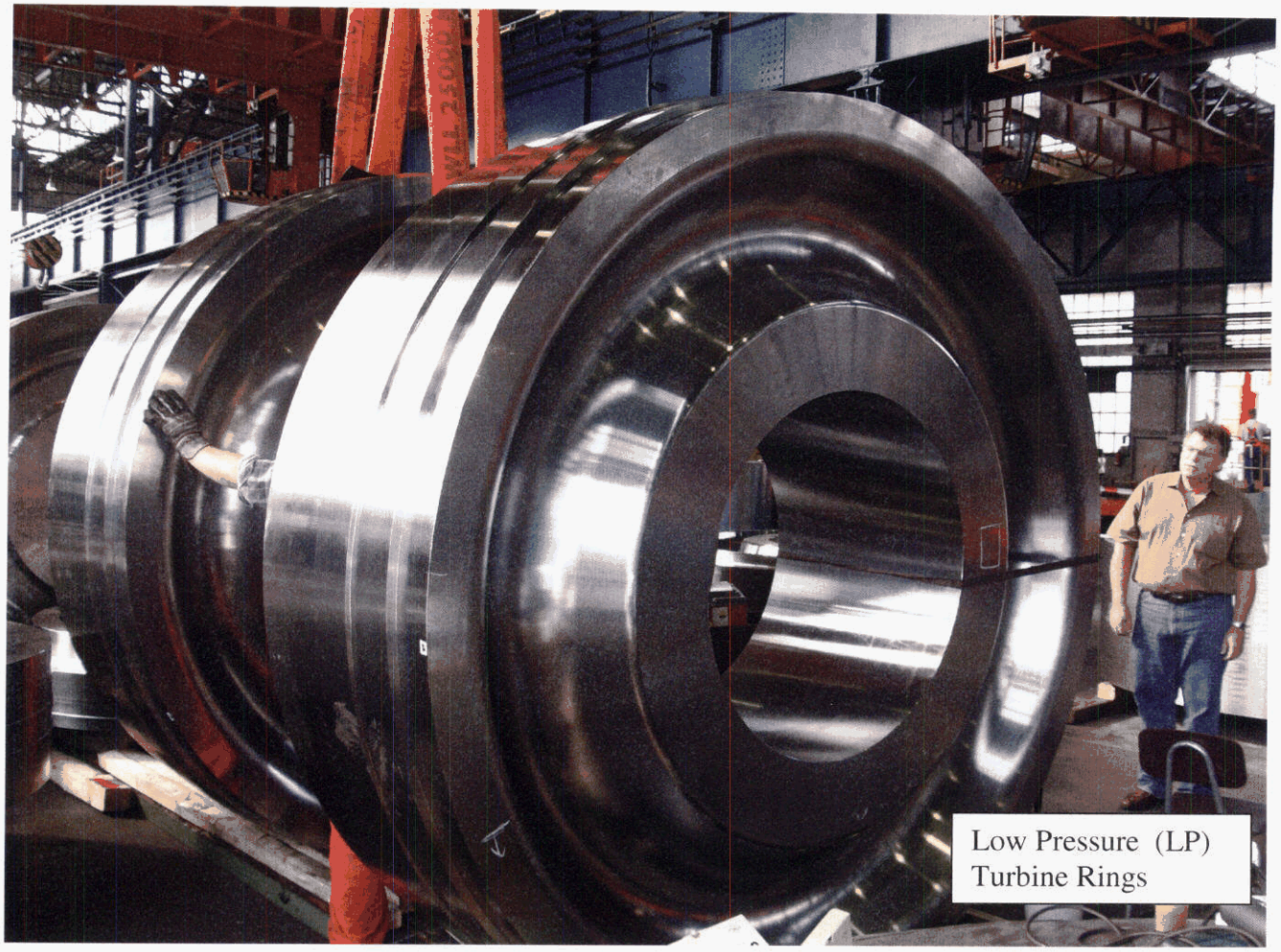
| REPORT | REPORT DESCRIPTION | PERIODICITY | AUDIENCE |
|---|---|---|---|
| PSL, PTN Risk Matrix | Quantified Risks, Potential Cost Impact, Weighted Cost Impact, Probability of Occurrence, and Risks identified but not quantified | Every Three Weeks | Project Management, Input to Presentations |
| PSL, PTN LAR Schedules | Schedule for completing LAR | Weekly | Project Management, Input to Presentations |
| PSL, PTN Modification Schedules | Schedule for Completing Modifications | Weekly | Project Management, Input to Presentations |
| PSL, PTN, Monthly Cash Flow Charts | Project Annual Budget, Actuals to Date and Forecast | Monthly | Project Management |
| Executive Steering Committee Meeting Presentations | Project Status, Indicators, Forecast, Issues, Next Steps | Monthly | Executive Management |
| Bechtel Status Report | Dashboard, Progress Indicators, Resources, Schedule, Costs | Monthly | Project Management |
| Vendor Integration Meeting Presentations | Vendors prepare status report | Quarterly | Executive and Project Management |




LP Turbine Rotor Forging




St. Lucie Low Pressure Turbine Rotors




Low Pressure (LP)
Turbine Rings

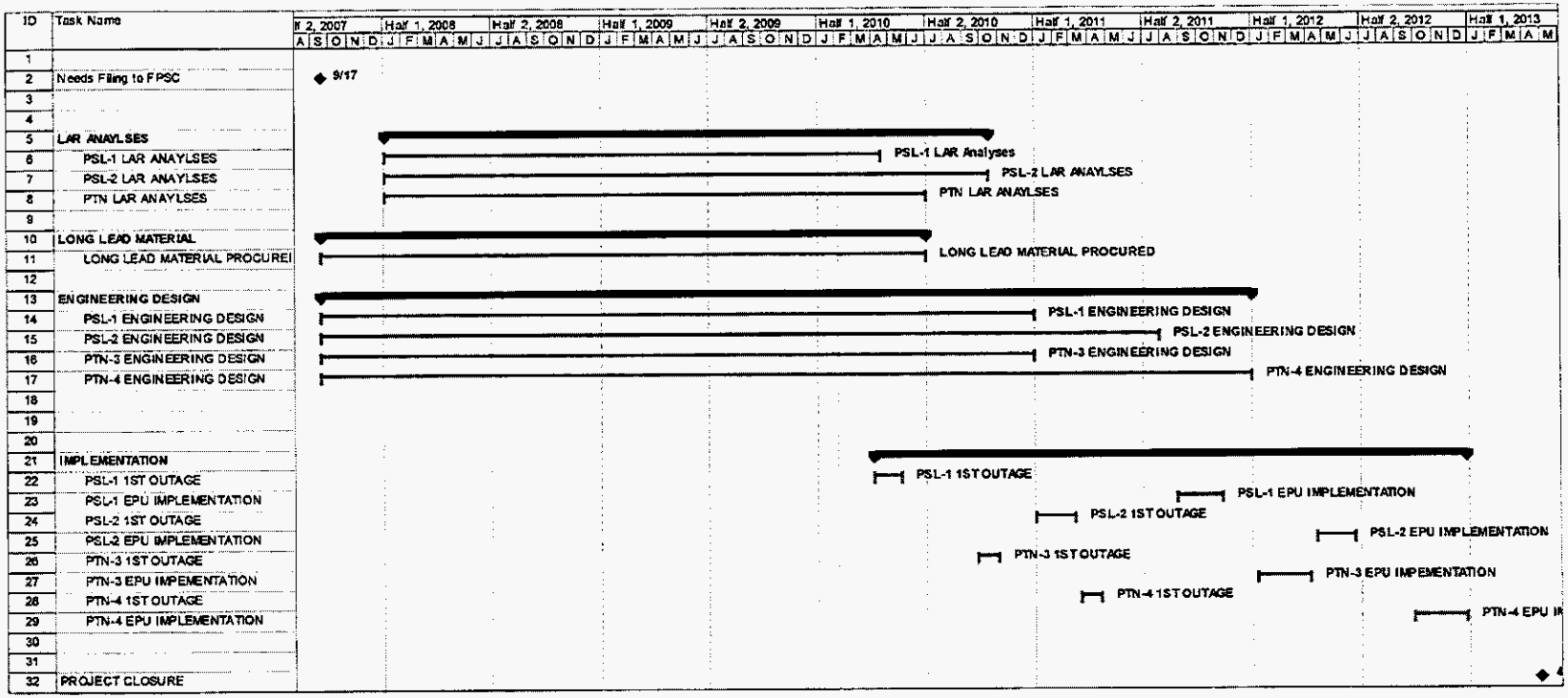

Factory Testing

## Plant Change or Modification (PCM) Status as of December 31, 2009

| Site | Currently Identified | Initiated | 30% | 90% | Final |
|---|---|---|---|---|---|
| **St. Lucie** | 75 | 17 | 17 | 4 | 2 |
| **Turkey Point** | 110 | 61 | 9 | 4 | 2 |
| **Total** | 185 | 78 | 26 | 8 | 4 |
| **Percent Complete** | | 42% | 14% | 4% | 2% |

- Initiated - Scope document issued
- 30% - Conceptual Design Package
- 90% - Implementation Review Package
- Final - Reviews completed and approved by Plant General Manager for issuance

# Extended Power Uprate (EPU) Project Schedule as of December 31, 2009




Docket No. 100009-EI
EPU Project Schedule
Exhibit TOJ-10, Page 1 of 1

**Table 1. 2009 Extended Power Uprate Construction Costs**

| Category | Detail Table No. | 2009 Actual Costs |
|---|---|---|
| Licensing | 2 | $ 66,925,376 |
| Engineering & Design | 3 | $ 12,568,941 |
| Permitting | 4 | $ 512,725 |
| Project Management | 5 | $ 15,544,538 |
| Power Block Engineering, Procurement, etc. | 6 | $141,222,239 |
| Non-Power Block Engineering, Procurement, etc. | 7 | $ 535,251 |
| **Total EPU Construction Costs** | **NA** | **$237,309,070** |
| Recoverable O&M | 8 | $ 498,077 |
| Transmission | 9 | $ 368,559 |
| **Total Construction Costs & Transmission** | **NA** | **$238,175,706** |

**Table 2. 2009 Licensing Costs**

| Category | 2009 Actual Costs |
|---|---|
| **St. Lucie (PSL) License Amendment Request (LAR)** | |
| Fuel Related Analyses | $6,296,047 |
| NSSS Component Analyses | $413,700 |
| FPL Engineering and Management | $723,260 |
| Balance of Plant (BOP) Engineering | $9,203,703 |
| Nuclear Steam Supply System (NSSS) and Fuel Analyses | $17,763,919 |
| Other Engineering | $796,693 |
| **Turkey Point (PTN) License Amendment Request (LAR)** | |
| NSSS Component Analyses | $1,711,476 |
| FPL Engineering and Management | $759,722 |
| Balance of Plant (BOP) Engineering | $9,185,796 |
| Nuclear Steam Supply System (NSSS) and Fuel Analyses | $19,354,523 |
| Other Engineering | $716,537 |
| **Total Licensing** | $66,925,376 |

**Table 3. 2009 Engineering and Design Costs**

| Category | 2009 Actual Costs |
|---|---|
| **Juno Beach** | |
| FPL and staff augmentation engineering | $3,032,708 |
| **St. Lucie (PSL)** | |
| FPL and staff augmentation engineering | $3,382,967 |
| **Turkey Point (PTN)** | |
| FPL and staff augmentation engineering | $6,153,266 |
| **Total Engineering and Design** | $12,568,941 |

**Table 4. 3009 Permitting Costs**

| Category | 2009 Actual Costs |
|---|---|
| **St. Lucie (PSL)** | |
| Environmental engineering, vendors and FPL support | $156,593 |
| **Turkey Point (PTN)** | |
| PTN engineering and Certification of Compliance, vendors and FPL support | $356,132 |
| **Total Permitting** | $512,725 |

**Table 5. 2009 Project Management Costs**

| Category | 2009 Actual Costs |
|---|---|
| **St. Lucie (PSL)** | |
| FPL, staff augmentation, and regulatory accounting | $6,595,408 |
| **Turkey Point (PTN)** | |
| FPL, staff augmentation, and regulatory accounting | $8,949,130 |
| **Total Project Management** | $15,544,538 |

**Table 6. 2009 Power Block Engineering, Procurement, Etc. Costs**

| Category | 2009 Actual Costs |
|---|---|
| **St. Lucie (PSL)** | |
| Engineering, Procurement, and Construction (EPC) | $16,889,707 |
| FPL and Staff Augmentation Engineering | $7,678,697 |
| Project Labor and Support Services | $14,286 |
| Turbine and Generator Upgrades | $27,888,297 |
| Miscellaneous Materials and Equipment | $11,804,754 |
| Turbine Gantry Crane Upgrades | $5,754,551 |
| **Turkey Point (PTN)** | |
| Engineering, Procurement, and Construction (EPC) | $26,662,566 |
| Feedwater Flow Meter | $1,969,078 |
| FPL and Staff Augmentation Engineering | $2,886,511 |
| Project Labor and Support Services | $348,816 |
| Staff Augmentation Engineering Support | $351,489 |
| Engineering Support for the Turbine Equipment | $68,487 |
| Turbine and Generator Upgrades | $7,601,964 |
| Heat Exchangers | $28,995,806 |
| Miscellaneous Materials and Equipment | $2,307,230 |
| **Total Power Block Engineering, Procurement, Etc.** | $ 141,222,239 |

**Table 7. 2009 Non-Power Block Engineering, Procurement, etc. Costs**

| Category | 2009 Actual Costs |
|---|---|
| **St. Lucie (PSL)** | |
| Simulator modification support | $323,981 |
| **Turkey Point (PTN)** | |
| Simulator modification support | $211,270 |
| **Total Non-Power Block Engineering, Procurement, etc.** | $535,251 |

**Table 8. 2009 Recoverable O&M Costs**

| Category | 2009 Actual Costs |
|---|---|
| **St. Lucie (PSL) and Turkey Point (PTN)** | |
| Non capitalizable computer hardware and software, office furniture and fixtures for new project-bound hires, incremental staff and augmented contract staff. | $498,077 |
| **Total Recoverable O&M** | $498,077 |

**Table 9. 2009 Transmission Costs**

| Category | 2009 Actual Costs |
|---|---|
| Line Engineering | $13,004 |
| Substation Engineering | $120,481 |
| Line Construction | $228,155 |
| Substation Construction | $6,919 |
| **Total Transmission** | $368,559 |

| Extended Power Uprate Equipment List | | | |
|---|---|---|---|
| **St. Lucie Components** | **Description** | **Contract** | **Scoping Document** |
| Main Steam Isolation Valve (MSIV) Upgrade | Larger operators on the MSIVs are required to operate against higher steam pressure | To Be Determined (TBD) | FPL Feasibility Study 2007, St. Lucie Nuclear Plant, Balance of Plant, Extended Power Uprate, Scoping Study, February 2008 |
| Turbine Performance Test Points Installation and Monitoring | Installation and monitoring of test points in main steam system to acquire baseline data before and after the power uprate conditions. | Shelby Jones Co. PO-119443 Florida Fluid PO-122350 | Siemens turbine engineering requirement |
| High Pressure (HP) Turbine Rotor | Larger inlet valves are required for increased steam flows in the uprate conditions | Siemens PO-116088 | FPL Feasibility Study 2007, St. Lucie Nuclear Plant, Balance of Plant, Extended Power Uprate, Scoping Study, February 2008 |
| Moisture Separator Reheater (MSR) Replacement | Larger capacity MSRs are required to heat and dry the steam flow in the uprate conditions. | TEI PO-118205 | FPL Feasibility Study 2007, St. Lucie Nuclear Plant, Balance of Plant, Extended Power Uprate, Scoping Study, February 2008 |
| Low Pressure (LP) Turbine Rotor | Larger LP turbine rotors are required for the increased steam flow in the uprate conditions | Siemens PO-116088 | FPL Feasibility Study 2007, St. Lucie Nuclear Plant, Balance of Plant, Extended Power Uprate, Scoping Study, February 2008 |
| Moisture Separator Drain Control Valves Replacement | Larger valves are needed for the increased condensed water flow in the uprate conditions | TBD | FPL Feasibility Study 2007, St. Lucie Nuclear Plant, Balance of Plant, Extended Power Uprate, Scoping Study, February 2008 |

| Extended Power Uprate Equipment List | | | |
|---|---|---|---|
| **St. Lucie Components** | **Description** | **Contract** | **Scoping Document** |
| Condenser Material Upgrade | Strengthening of the Main Condenser is needed with higher steam and condensate flows in the uprate conditions. | TBD | FPL Feasibility Study 2007, St. Lucie Nuclear Plant, Balance of Plant, Extended Power Uprate, Scoping Study, February 2008 |
| Condensate Pump Replacement | Larger condensate pumps are needed to pump the increased condensate flows in the uprate conditions. | TBD | FPL Feasibility Study 2007, St. Lucie Nuclear Plant, Balance of Plant, Extended Power Uprate, Scoping Study, February 2008 |
| Feedwater Heater Replacement (#5) | Larger feedwater heaters are needed to process the steam and feedwater flows in the uprate conditions. | TEI PO-118224 | FPL Feasibility Study 2007, St. Lucie Nuclear Plant, Balance of Plant, Extended Power Uprate, Scoping Study, February 2008 |
| Heater Drain Control Valves | Larger valves are needed to control the condensate flow in the uprate conditions | TBD | FPL Feasibility Study 2007, St. Lucie Nuclear Plant, Balance of Plant, Extended Power Uprate, Scoping Study, February 2008 |
| Feedwater Digital Modifications | Instrumentation to provide control the feedwater heater control and dump valves in the uprate conditions. | TBD | FPL Feasibility Study 2007, St. Lucie Nuclear Plant, Balance of Plant, Extended Power Uprate, Scoping Study, February 2008 |
| Heater Drain Pump and Motor Replacements | Larger pumps and motors are required to pump the increased heater drain flows in the uprate conditions. | Flowserve Corp. PO- 125454 | St. Lucie Nuclear Plant, Balance of Plant, Extended Power Uprate, Scoping Study, February 2008 |

| Extended Power Uprate Equipment List | | | |
|---|---|---|---|
| **St. Lucie Components** | **Description** | **Contract** | **Scoping Document** |
| Main Feedwater Pump Replacement | Larger pumps are required to pump the increased feedwater flow required in the uprate conditions. | Flowserve PO-121985 | FPL Feasibility Study 2007, St. Lucie Nuclear Plant, Balance of Plant, Extended Power Uprate, Scoping Study, February 2008 |
| Leading Edge Flow Meter (LEFM) Measurement Uncertainty Recapture (MUR) | Precision flow measurement instrument and instrumentation provides for increased certainty of operating parameters supporting uprate conditions. | Cameron PO-116107 | FPL Feasibility Study 2007, St. Lucie Nuclear Plant, Balance of Plant, Extended Power Uprate, Scoping Study, February 2008 |
| Feedwater Regulating Valves Upgrade | Larger operating mechanisms are required to operate the feedwater regulating valves in the increased uprate conditions. | TBD | FPL Feasibility Study 2007, St. Lucie Nuclear Plant, Balance of Plant, Extended Power Uprate, Scoping Study, February 2008 |
| Control Element Drive Mechanism (CEDM) System Upgrades | Upgrade the CEDM system to recover operational and safety margins in the uprate conditions. | Westinghouse PO-118271 | OEM Recommendation |
| Main Generator Rotor Replacement and Stator Rewind | Larger generator is needed to increase electrical output in the uprate conditions. | Siemens PO-116088 | FPL Feasibility Study 2007, St. Lucie Nuclear Plant, Balance of Plant, Extended Power Uprate, Scoping Study, February 2008 |
| Main Generator Hydrogen Coolers | Increased main generator cooling is required in the uprate conditions. | Siemens PO-116088 | FPL Feasibility Study 2007, St. Lucie Nuclear Plant, Balance of Plant, Extended Power Uprate, Scoping Study, February 2008 |

| Extended Power Uprate Equipment List | | | |
|---|---|---|---|
| **St. Lucie Components** | **Description** | **Contract** | **Scoping Document** |
| Main Generator Hydrogen Seal Oil Pressure Increase | Increased hydrogen pressure for main generator cooling is required in the uprate conditions. | Siemens PO-116088 | FPL Feasibility Study 2007, St. Lucie Nuclear Plant, Balance of Plant, Extended Power Uprate, Scoping Study, February 2008 |
| Main Generator Exciter Coolers/Blower | Increased cooling of the main generator exciter is required in the power uprate conditions. | Siemens PO-116088 | FPL Feasibility Study 2007, St. Lucie Nuclear Plant, Balance of Plant, Extended Power Uprate, Scoping Study, February 2008 |
| Main Transformer Replacement | Larger main transformers are needed to handle the increase in the main generator electrical output. | Siemens PO-4500467077 | FPL Feasibility Study 2007, St. Lucie Nuclear Plant, Balance of Plant, Extended Power Uprate, Scoping Study, February 2008 |
| Main Transformer Cooler Upgrade | Increased cooling is needed to handle the increase in the main generator electrical output. | ABB PO-112255, 126248 | FPL Feasibility Study 2007, St. Lucie Nuclear Plant, Balance of Plant, Extended Power Uprate, Scoping Study, February 2008, ABB Engineering Thermal Loading Design Study, FPL St. Lucie, ABB Project Number, FP13469-1, Rev.1, August 25, 2008 |
| Turbine Cooling Water (TCW) Heat Exchanger Replacement | Larger heat exchangers are needed for increased cooling in the uprate conditions. | TEI PO-118278 | St. Lucie Nuclear Plant, Balance of Plant, Extended Power Uprate, Scoping Study, February 2008 |

| Extended Power Uprate Equipment List | | | |
|---|---|---|---|
| **St. Lucie Components** | **Description** | **Contract** | **Scoping Document** |
| Iso-Phase Bus Duct Cooling | Increased cooling is needed for the electrical connections from the main generator to the main transformer in the uprate conditions. | AZZ Calvert PO-120769 | FPL Feasibility Study 2007, St. Lucie Nuclear Plant, Balance of Plant, Extended Power Uprate, Scoping Study, February 2008 |
| Turbine Gantry Cranes Upgrade | Upgrades needed to more efficiently and precisely move heavy EPU equipment loads. | ACECO PO-117272 Sargent & Lundy PO-79551 | Identified during scheduling and planning for EPU heavy equipment moves |
| Training Simulator Modifications | Upgrades needed to replicate the plant in the power uprate conditions. | Western Services Corp. PO-118627 | FPL Feasibility Study 2007, St. Lucie Nuclear Plant, Balance of Plant, Extended Power Uprate, Scoping Study, February 2008 |
| Digital Electro-Hydraulic (DEH) Computer System Upgrade | Upgrades needed for increased certainty of turbine operating parameters supporting uprate conditions. | TBD | FPL Feasibility Study 2007, St. Lucie Nuclear Plant, Balance of Plant, Extended Power Uprate, Scoping Study, February 2008 |
| Main Generator Current Transformers (CT) and Bushing Replacement | Upgrades required due to the modifications to the generator rotor and stator for uprate conditions. | Siemens PO-116088 | FPL Feasibility Study 2007, St. Lucie Nuclear Plant, Balance of Plant, Extended Power Uprate, Scoping Study, February 2008 |
| Installation of Power System Stabilizer | Upgrades required due to the modifications to the generator rotor and stator for uprate conditions. | TBD | Facilities Study, FPL Extended Power Uprate project, St. Lucie 1&2, Q114 & Q115, March 2009 |

| Extended Power Uprate Equipment List | | | |
|---|---|---|---|
| **St. Lucie Components** | **Description** | **Contract** | **Scoping Document** |
| Electrical Bus Margin Upgrades | Required to restore margin on electrical busses as a result of uprate. | Bechtel PO-117820 | FPL Feasibility Study 2007, St. Lucie Nuclear Plant, Balance of Plant, Extended Power Uprate, Scoping Study, February 2008 |
| Secondary Plant Instrumentation | Setpoint and scaling of plant instrumentation for uprate conditions | Bechtel PO-117820 | FPL Feasibility Study 2007, St. Lucie Nuclear Plant, Balance of Plant, Extended Power Uprate, Scoping Study, February 2008 |
| Steam Bypass Upgrades | Upgrades required due to increased bypass flow to condenser from main steam, feed water and heater drains | Bechtel PO-117820 | PSL License Amendment Request (LAR) Engineering |
| Containment Mini-Purge | Reduction of maximum allowed Containment pressure per NRC Plant Technical Specifications | Bechtel PO-117820 | PSL LAR Engineering |
| Control Room Upgrades | Additional cooling and Alternate Source Term margin required for power uprate conditions. | Bechtel PO-117820 | FPL Feasibility Study 2007, St. Lucie Nuclear Plant, Balance of Plant, Extended Power Uprate, Scoping Study, February 2008 |
| Hot Leg Injection Flow Improvements | Increasing required flow under EPU and eliminating SPV with cross train power on in-series valves | Bechtel PO-117820 | PSL LAR Engineering |

| Extended Power Uprate Equipment List | | | |
|---|---|---|---|
| **St. Lucie Components** | **Description** | **Contract** | **Scoping Document** |
| Safety Injection Tank (SIT) Pressure Increase | Upgrade required to operate at higher pressure based on EPU conditions for small break Loss of Coolant Accident (LOCA) analysis | Bechtel PO-117820 | PSL LAR Engineering |

| Extended Power Uprate Equipment List | | | |
|---|---|---|---|
| **Turkey Point Components** | **Description** | **Contract** | **Scoping Document** |
| Sump PH Control | Alternate Source Term method requires pH greater than 7.0. The current pH control system is not sufficient at uprate conditions. | S&L PO-79551 | Alternate Source Term (AST) License Amendment Request (LAR) Engineering |
| Containment Cooling Modifications | Increased power production from the primary system requires additional cooling of the containment in the uprate conditions. | AAF McQuay PO-121869 | FPL PTN Feasibility Study 2007, Turkey Point Nuclear Plant Balance of Plant Extended Power Uprate Scoping Study, March 2008 |
| Main Steam Safety Valve / Piping Upgrades | Increased temperature and pressure require set point changes in the uprate conditions | Bechtel PO-117809 | FPL PTN Feasibility Study 2007, Turkey Point Nuclear Plant Balance of Plant Extended Power Uprate Scoping Study, March 2008 |
| Main Steam Pipe Supports Replacement | Uprate conditions require additional piping supports and restraints. | Bechtel PO-117809 | FPL PTN Feasibility Study 2007, Turkey Point Nuclear Plant Balance of Plant Extended Power Uprate Scoping Study, March 2008 |
| Turbine Performance Test Points Installation and Monitoring | Installation and monitoring of test points in main steam system to acquire baseline data before and after the power uprate conditions. | Proto Power PO-115488 | Siemens turbine engineering requirement |

| Extended Power Uprate Equipment List | | | |
|---|---|---|---|
| **Turkey Point Components** | **Description** | **Contract** | **Scoping Document** |
| Flow Accelerated Corrosion (FAC) Identified Piping Replacement | Increased flows require replacement of piping affected by the flow accelerated corrosion in the uprate conditions. | Bechtel PO-117809 | FPL PTN Feasibility Study 2007, Turkey Point Nuclear Plant Balance of Plant Extended Power Uprate Scoping Study, March 2008 |
| High Pressure (HP) Turbine Upgrade | Larger inlet throttle valves and Turbine redesign are required for increased steam flows in the uprate conditions | Siemens PO-116090 | FPL PTN Feasibility Study 2007, Turkey Point Nuclear Plant Balance of Plant Extended Power Uprate Scoping Study, March 2008 |
| Turbine Electro-Hydraulic Controls (EHC) | Enhanced controls for the new turbines. Current design is not sufficient for the new turbine configuration in the uprate conditions. | Siemens PO-116090 | FPL PTN Feasibility Study 2007, Turkey Point Nuclear Plant Balance of Plant Extended Power Uprate Scoping Study, March 2008 |
| Moisture Separator Reheater (MSR) Replacement | Larger capacity MSRs are required to heat and dry the steam flow in the uprate conditions. | TEI PO-118206 | FPL PTN Feasibility Study 2007, Turkey Point Nuclear Plant Balance of Plant Extended Power Uprate Scoping Study, March 2008 |
| Main Condenser replacement | Increased turbine exhaust steam to the main condenser requires replacement of the main condenser to support uprate conditions. | TEI PO-118328 | FPL PTN Feasibility Study 2007, Turkey Point Nuclear Plant Balance of Plant Extended Power Uprate Scoping Study, March 2008 |

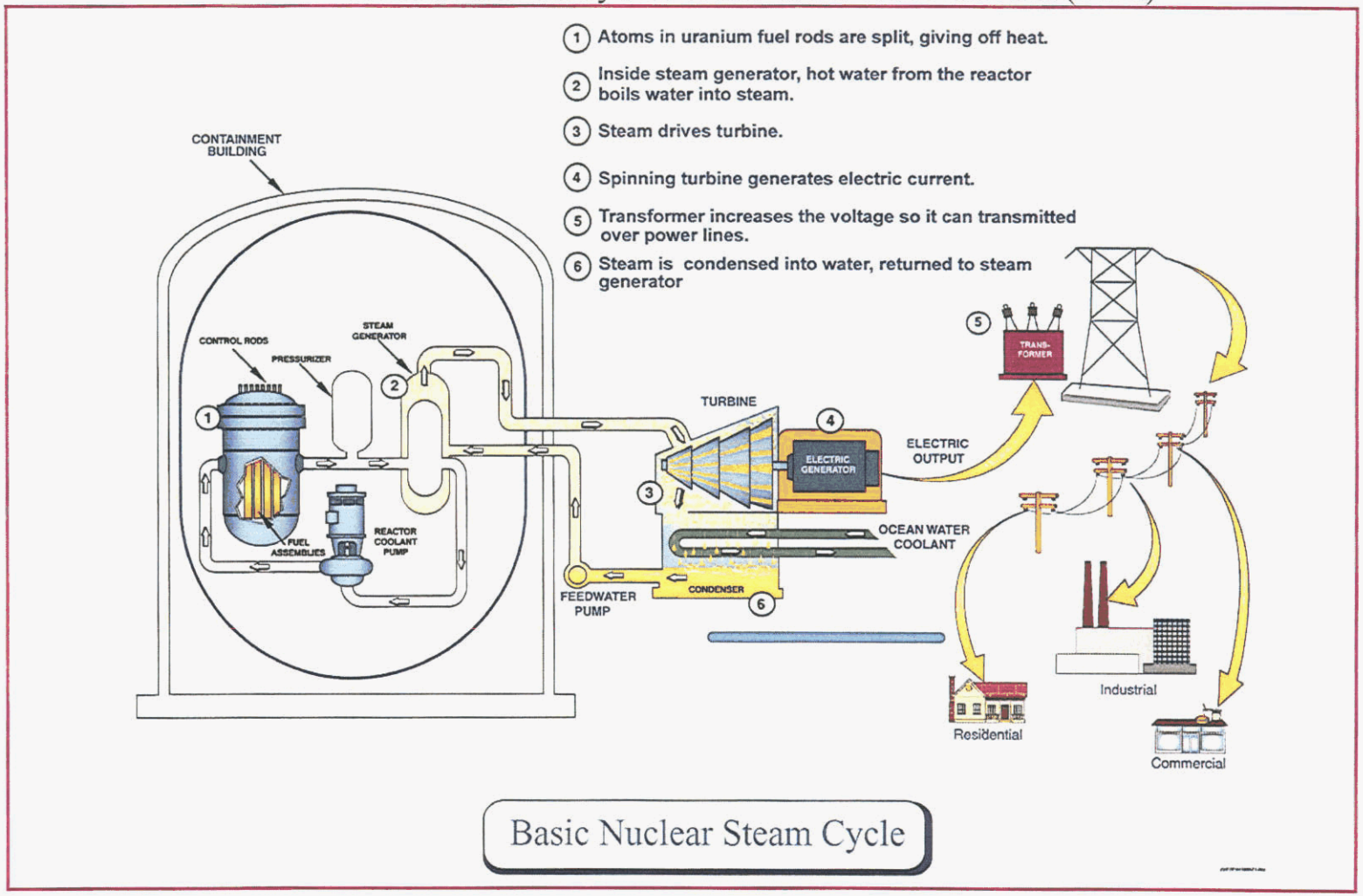
| Extended Power Uprate Equipment List | | | |
|---|---|---|---|
| **Turkey Point Components** | **Description** | **Contract** | **Scoping Document** |
| Condenser Amertap Cleaning System Replacement | Replacement of the main condenser requires replacement of the condenser tube cleaning system to support the uprate conditions. | PO- 118328 | FPL PTN Feasibility Study 2007, Turkey Point Nuclear Plant Balance of Plant Extended Power Uprate Scoping Study, March 2008 |
| Condensate Pump and Motor Replacement | Larger condensate pumps are needed to pump the increased condensate flows in the uprate conditions. | TBD | FPL PTN Feasibility Study 2007, Turkey Point Nuclear Plant Balance of Plant Extended Power Uprate Scoping Study, March 2008 |
| Feedwater Heaters (5,6) | Larger feedwater heaters are needed to process the steam and feedwater flows in the uprate conditions. | TEI PO-118241 | FPL PTN Feasibility Study 2007, Turkey Point Nuclear Plant Balance of Plant Extended Power Uprate Scoping Study, March 2008 |
| Heater Drain Valves | Larger valves are needed to control the condensate flow in the uprate conditions | Bechtel PO-117809 | FPL PTN Feasibility Study 2007, Turkey Point Nuclear Plant Balance of Plant Extended Power Uprate Scoping Study, March 2008 |
| Feedwater Heater Drains Digital Upgrades | Instrumentation to provide control the feedwater heater control and dump valves in the uprate conditions. | PO -126227 | FPL PTN Feasibility Study 2007, Turkey Point Nuclear Plant Balance of Plant Extended Power Uprate Scoping Study, March 2008 |
| Feedwater Heater #5 Drain Piping Upgrade | Higher drain water flows require larger piping in the uprate conditions. | Bechtel PO-117809 | FPL PTN Feasibility Study 2007, Turkey Point Nuclear Plant Balance of Plant Extended Power Uprate Scoping Study, March 2008 |

| Extended Power Uprate Equipment List | | | |
|---|---|---|---|
| **Turkey Point Components** | **Description** | **Contract** | **Scoping Document** |
| Main Feed Pump Replacement | Rotating assemblies need redesign to pump the increased feedwater flow required in the uprate conditions. | TBD | FPL PTN Feasibility Study 2007, Turkey Point Nuclear Plant Balance of Plant Extended Power Uprate Scoping Study, March 2008 |
| Measurement Uncertainty recapture (MUR) LEFM | Precision flow measurement instrument and instrumentation provides for increased certainty of operating parameters supporting uprate conditions. | Cameron PO-116796 | FPL PTN Feasibility Study 2007, Turkey Point Nuclear Plant Balance of Plant Extended Power Uprate Scoping Study, March 2008 |
| Feedwater Regulating Valves Upgrade | Larger actuators and valve internals are required to operate the feedwater regulating valves in the increased uprate conditions. | SPX PO-115351 | FPL PTN Feasibility Study 2007, Turkey Point Nuclear Plant Balance of Plant Extended Power Uprate Scoping Study, March 2008 |
| Feedwater Isolation Valves Addition | Increased feedwater flow and pressure requires modifications to support uprate conditions. | Flowserve PO-123137 | FPL PTN Feasibility Study 2007, Turkey Point Nuclear Plant Balance of Plant Extended Power Uprate Scoping Study, March 2008 |
| Auxiliary Feedwater (AFW) Modifications | Increased feedwater flows and pressure requires modifications to valve stops including rotating assemblies overhauls to support uprate conditions | Bechtel PO-117809 | LAR Engineering |

| Extended Power Uprate Equipment List | | | |
|---|---|---|---|
| **Turkey Point Components** | **Description** | **Contract** | **Scoping Document** |
| Main Generator Rotor Replacement | Larger generator and stator are needed to increase electrical output in the uprate conditions. | Siemens PO-116090 | FPL PTN Feasibility Study 2007, Turkey Point Nuclear Plant Balance of Plant Extended Power Uprate Scoping Study, March 2008 |
| Main Generator Hydrogen Coolers | Increased main generator cooling is required in the uprate conditions. | Siemens PO-116090 | FPL PTN Feasibility Study 2007, Turkey Point Nuclear Plant Balance of Plant Extended Power Uprate Scoping Study, March 2008 |
| Iso-Phase Bus Duct Modifications | Increased bus size is needed for the electrical connections from the main generator to the main transformer in the uprate conditions. | AZZ / Calvert PO-124436 | FPL PTN Feasibility Study 2007, Turkey Point Nuclear Plant Balance of Plant Extended Power Uprate Scoping Study, March 2008 |
| 1A Main Transformer Cooler Upgrade | Increased cooling is needed to handle the increase in the main generator electrical output. | Siemens PO-122154 | T&D |
| Switchyard Upgrades | Increased electrical output requires modification to switchyard equipment to support the uprate conditions. | T & D | Generation Interconnection Service and Network Resource Interconnection Service System Impact Study. 11/25/08 |
| ICW Turbine Plant Cooling Water (TPCW) Cooling Upgrade | Increased temperatures of components require additional cooling in the uprate conditions. | Joseph Oat Corp. PO-126453 | FPL PTN Feasibility Study 2007, Turkey Point Nuclear Plant Balance of Plant Extended Power Uprate Scoping Study, March 2008 |

| Extended Power Uprate Equipment List | | | |
|---|---|---|---|
| **Turkey Point Components** | **Description** | **Contract** | **Scoping Document** |
| Plant Instrumentation Modifications | Increased pressures and flows require modifications and adjustments to process instrumentation in the uprate conditions. | Bechtel PO-117809 | FPL PTN Feasibility Study 2007, Turkey Point Nuclear Plant Balance of Plant Extended Power Uprate Scoping Study, March 2008 |
| ECF Removal | Abandon containment filters from the containment to support the safety margin in the uprate conditions. | Bechtel PO-117809 | FPL PTN Feasibility Study 2007 |
| Control Room Habitability | Upgrade control room HVAC system to properly limit radiological exposure to the control room operators at uprate conditions. | Bechtel PO-117809 | AST LAR Engineering |
| Turbine Gantry Crane Upgrades | Upgrades needed to more efficiently and precisely move heavy EPU equipment loads. | Bechtel PO-117809 | Identified during scheduling and planning of moving EPU heavy equipment loads. |
| Alternate Spent Fuel Pool Cooling | Increased power from the fuel requires additional cooling of the fuel when it is placed into the spent fuel pool. | TBD | FPL PTN Feasibility Study 2007, Turkey Point Nuclear Plant Balance of Plant Extended Power Uprate Scoping Study, March 2008 |
| Training Simulator Modifications | Upgrades needed to replicate the plant in the power uprate conditions. | Western Services PO-118844 | FPL PTN Feasibility Study 2007, Turkey Point Nuclear Plant Balance of Plant Extended Power Uprate Scoping Study, March 2008 |

# St. Lucie and Turkey Point Pressurized Water Reactors (PWR)




Basic Nuclear Steam Cycle

Docket No. 100009-EI
PWR Basic Nuclear Steam Cycle
Exhibit TOJ-13, Page 1 of 1