REDACTED

110009-EI

EXHIBIT B

REDACTED

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In Re: Nuclear Cost Recovery Clause	Docket No. 110009-EI
	FILED: July 8, 2011

(CONFIDENTIAL VERSION)

DIRECT TESTIMONY

OF

WILLIAM R. JACOBS, JR., Ph.D.

ON BEHALF OF THE CITIZENS OF

THE STATE OF FLORIDA

REVIEW OF FLORIDA POWER AND LIGHT COMPANY'S

NUCLEAR COST RECOVERY RULE FILING

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On Behalf of the Office of Public Counsel

Before the

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I.INTRODUCTION

Q. PLEASE STATE YOUR NAME, TITLE AND BUSINESS ADDRESS.

A. My name is William R. Jacobs, Jr., Ph.D. I am a Vice President of GDS Associates, Inc. My business address is 1850 Parkway Place, Suite 800, Marietta, Georgia, 30067.

Q. DR. JACOBS, PLEASE SUMMARIZE YOUR EDUCATIONAL BACKGROUND AND EXPERIENCE.

A. I received a Bachelor of Mechanical Engineering in 1968, a Master of Science in Nuclear Engineering in 1969 and a Ph.D. in Nuclear Engineering in 1971, all from the Georgia Institute of Technology. I am a registered professional engineer and a member of the American Nuclear Society. I have more than thirty years of experience in the electric power industry including more than twelve years of power plant construction and start-up experience. I have participated in the construction and start-up of seven power plants in this country and overseas in management positions including start-up manager and site manager. As a loaned employee at the Institute of Nuclear Power Operations ("INPO"), I participated in the Construction Project Evaluation Program, performed operating plant evaluations and assisted in the

development of the Outage Management Evaluation Program. Since joining GDS Associates, Inc. in 1986, I have participated in rate case and litigation support activities related to power plant construction, operation and decommissioning. I have evaluated nuclear power plant outages at numerous nuclear plants throughout the United States. I am currently on the management committee of Plum Point Unit 1, a 650 MWe coal fired power plant under construction near Osceola, Arkansas. As a member of the management committee, I assist in providing oversight of the EPC contractor for this project. I am currently the Georgia Public Service Commission's (GPSC) Independent Construction Monitor for Georgia Power Vogtle 3 and 4 nuclear project. As the Independent Construction Monitor I assist the GPSC Commissioners and Staff in providing regulatory oversight of the project. My monitoring activities include regular meetings with project management personnel and regular visits to the Vogtle plant site to monitor construction activities and assess the project schedule and budget. My resume is included as Exhibit WRJ-1.

Q. WERE YOU ASSISTED BY OTHER GDS PERSONNEL IN THIS EFFORT?

A. Yes, I was. In addition to myself, the GDS team involved in the review and evaluation of the requests for authorization to recover costs consisted of Mr. James P. McGaughy, Jr., a former nuclear utility executive with over 37 years of experience, and Mr. Brian Smith, an expert in production cost modeling and feasibility analyses. Mr. Smith is sponsoring testimony on an aspect of our review. His qualifications are contained in his prefiled testimony. The resume of Mr. McGaughy is attached to this testimony as Exhibit WRJ-2. I have reviewed the work of Mr. McGaughy, and have incorporated and adopted it as my own in this testimony.

Q. WHAT IS THE NATURE OF YOUR BUSINESS?

A. GDS Associates, Inc. ("GDS") is an engineering and consulting firm with offices in Marietta, Georgia; Austin, Texas; Manchester, New Hampshire; Madison, Wisconsin; and Auburn, Alabama. GDS provides a variety of services to the electric utility industry including power supply planning, generation support services, rates and regulatory consulting, financial analysis, load forecasting and statistical services. Generation support services provided by GDS include fossil and nuclear plant monitoring, plant ownership feasibility studies, plant management audits, production cost modeling and expert testimony on matters relating to plant management, construction, licensing and performance issues in technical litigation and regulatory proceedings.

Q. WHOM ARE YOU REPRESENTING IN THIS PROCEEDING?

A. I am appearing on behalf of the Florida Office of Public Counsel ("OPC"), who represents the ratepayers of Florida Power & Light Company.

Q. WHAT WAS YOUR ASSIGNMENT IN THIS PROCEEDING?

A. I was asked to assist the Florida Office of Public Counsel to conduct a review and evaluation of requests by Florida Power and Light Company (FPL) for authority to collect historical and projected costs associated with extended power uprate ("EPU") projects being pursued at the Turkey Point 3 and 4 and St. Lucie 1 and 2 nuclear plants, and historical and projected costs associated with FPL's Turkey Point 6 and 7 new nuclear project through the capacity cost recovery clause.

Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THIS COMMISSION?

A. Yes. I testified on behalf of the Florida Office of Public Counsel in the previous NCRC proceedings in Dockets No. 080009-EI, 090009-EI and 100009-EI.

Q. PLEASE PROVIDE A BRIEF OVERVIEW OF THE NATURE AND STATUS OF FPL'S NUCLEAR PROJECTS.

A. FPL currently has two major nuclear projects under way. The most active project at this time is the project to increase the generating capacity of FPL's existing nuclear units, Turkey Point 3 and 4 and St. Lucie 1 and 2, by a total of 450 megawatts. This project is referred to as the extended power uprate or EPU project. It is currently scheduled to be completed in 2013. FPL has spent approximately $700 million of an estimated total cost of $2.48 billion on the EPU project. The second project is the development of Turkey Point 6 and 7, a new nuclear plant consisting of two Westinghouse AP1000 reactors. This project is in the licensing stage. It is projected to provide 2,200 megawatts of capacity with on line dates of 2022 and 2023. At this time FPL has spent $129 million of an estimated "overnight cost" (that excludes carrying costs and escalation) of $11.1 billion.

Q. PLEASE SUMMARIZE FPL's REQUEST FOR COST RECOVERY IN THIS DOCKET UNDER THE NUCLEAR COST RECOVERY CLAUSE.

A. FPL is requesting authority to include $196,004,292 of nuclear cost items in the 2012 Capacity Cost Recovery factor.

II. METHODOLOGY

Q. PLEASE DESCRIBE THE METHODOLOGY THAT YOU USED TO REVIEW AND EVALUATE THE REQUESTS FOR AUTHORIZATION TO COLLECT COSTS SUBMITTED BY FPL UNDER THE NUCLEAR COST RECOVERY CLAUSE.

A. I first reviewed the Company's filings in this docket and assisted in the issuance of numerous interrogatories and requests for production of documents. To evaluate the issues related to project schedule, cost and risk management, I reviewed many internal documents, status reports and correspondence with regulatory authorities. I reviewed responses to discovery requests and issued additional discovery requests as needed. I assisted OPC attorneys with the depositions of FPL witnesses.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. In my testimony, I will address three subjects. The first subject is the inappropriate methodology that FPL employs to assess the long-term feasibility of its EPU uprate project. Next, I will describe how the deficient feasibility methodology and imprudence on FPL's part in the areas of selecting a "fast track" approach for the EPU project, estimating the overall costs of the uprate projects and managing risk during the project have potentially placed the utility in the position of incurring unreasonable costs that are in excess of those associated with an alternative generation plan and so should be disallowed from the amounts that FPL is authorized to collect from customers. Finally, I will address the issue relating to the estimate of the capital costs of its EPU project that FPL submitted in prefiled testimony dated May 1, 2009, and that it decided not to update either prior to or during the September 2009 hearing in Docket No. 090009-EI.

III. SUMMARY OF TESTIMONY

Q. PLEASE SUMMARIZE YOUR CONCLUSIONS WITH RESPECT TO THE METHODOLOGY THAT FPL USES TO PERFORM ITS FEASIBILITY ANALYSES OF THE UPRATE PROJECTS.

A. I conclude that FPL's comparison of the cumulative present value of revenue requirements of two resource plans--one incorporating the nuclear uprate projects and another without the nuclear uprates-- in which FPL excludes amounts already spent from the capital costs of the "with uprate" scenario, is ill-suited to the circumstance of FPL's EPU uprate project. This is because FPL had little grasp of what the capital costs would be at the beginning of the project, and FPL's estimates of the cost of completing the projects ("to-go costs") have increased dramatically from the outset. Excluding "sunk costs" is an accepted way of performing a feasibility study when the overall project cost is known, stable and well defined. However, if the project costs are largely unknown and estimates are understated at the outset, and if as a result the "to go" costs increase nearly as much as the annual "past spent" amount that is excluded from the comparison over time, the exercise can cause misleading results: based only on "to go" costs, the analysis will likely continue to show feasibility, but when all costs are considered, the project may be uneconomical for customers. If there was ever a valid basis for using the comparison of revenue requirements as the means of evaluating the feasibility of the uprate projects, it has eroded in light of FPL's experience with estimating the costs of the project. My GDS colleague, Brian Smith, will illustrate the problem and propose a means of compensating for the distortion produced by FPL's inappropriate methodology pending the adoption of a replacement methodology. In that regard, for future feasibility studies I recommend that the Commission direct FPL to perform a "break-even" analysis for the uprate projects similar to the "break-even" study that it prepares to support the long-term feasibility of its proposed new nuclear units, and to calculate separate such "breakeven" thresholds for the St. Lucie and Turkey Point sites.

Q. PLEASE SUMMARIZE YOUR TESTIMONY CONCERNING MANAGEMENT IMPRUDENCE AND YOUR RECOMMENDATION THAT THE COMMISSION DISALLOW COSTS FOR THE EPU PROJECT THAT ARE GREATER THAN THE BREAKEVEN COSTS.

A. FPL's uprate projects began with what FPL styles an initial "scoping" study, followed by an "indicative" bid from Bechtel, its EPC contractor. As FPL's witness Jones acknowledges, an uprate to an existing nuclear unit is a hugely complex undertaking. At the beginning, it is imbued with enormous uncertainties. This type of project is uniquely unsuitable for the fast track approach, in which an organization commits to a project and spends large sums before it has any idea of the ultimate cost. Not only did FPL not have a reasonable idea of the final cost of the project, FPL exacerbated the situation by failing to quantify the "breakeven" point (that is, the maximum cost per installed kW of uprate capacity that would be as cost-effective or more cost-effective than the alternative to the uprate). Such a "breakeven" analysis is better suited to a project that is characterized by substantial uncertainty than is the comparison of revenue requirements that FPL adopted as its long term feasibility methodology for its uprate projects. Even today, FPL does not have a good handle on the ultimate cost of the uprates, and it does not incorporate a contingency factor that is adequate for the circumstances. Further, FPL was slow to recognize and take into account early indications that its initial estimates were inadequate. These missteps constitute imprudence that has exposed customers to the real likelihood that costs of a plan with the uprate projects will be higher than corresponding costs of a resource plan that does not include the projects. In fact, OPC witness and fellow GDS consultant Brian Smith will demonstrate that, at this stage of the projects, FPL's own data indicate that customers will see net costs, not net benefits, from the uprate

projects. This is the case even though the biggest expenditures are yet to come. To protect the customers from having to bear unreasonable costs occasioned by FPL's imprudence, I recommend that the Commission should disallow all costs greater than the breakeven cost from the amount that FPL seeks to collect through the NCRC. Because estimated capital costs and years of operations remaining prior to the expiration of operating licenses differ materially between the St. Lucie and Turkey Point uprate activities, I further recommend that the Commission direct FPL to perform a breakeven analysis for each EPU project, so that the economic feasibility and the justification for the continuation of the extended uprate project at each plant site can be evaluated individually rather than being lumped together.

Q. PLEASE SUMMARIZE YOUR CONCLUSIONS AND RECOMMENDATIONS WITH RESPECT TO THE ISSUE OF WHETHER FPL SHOULD HAVE AMENDED ITS TESTIMONY CONCERNING ITS ESTIMATE OF CAPITAL COSTS ASSOCIATED WITH THE UPRATE PROJECTS DURING THE SEPTEMBER, 2009 EVIDENTIARY HEARING.

A. Based on my review of information provided in discovery, I conclude the information regarding the cost of the EPU projects that FPL included in prefiled testimony in May 2009 was not the most current view of the utility, as the estimate in the May prefiled testimony had been effectively superseded by revised estimates as of the Executive Steering Committee meeting of July 25, 2009. At that time, managers of the uprate projects increased the estimate contained in May 2009 prefiled testimony by some $300 million, representing a 21% increase above the estimate contained in the prefiled testimony. FPL's uprate managers adjusted their estimates of capital costs again in August 2009, when they increased estimated capital costs by another $144.5

million, or a total of $443.6 million more than the amount FPL had been using as its estimate since 2007. FPL should have apprised the Commission of these developments no later than the time when its witness testified in the evidentiary hearing conducted on September 8, 2009. Further, because the capital cost estimate is a key component of the utility's long-term feasibility study which the Commission's rule requires FPL to present annually, FPL also should have revised its feasibility calculations to reflect the increased capital cost estimate and the correspondingly lower benefits associated with the increase during the same hearing. I am informed by OPC's counsel that OPC regards these failures as a violation of the rule governing the nuclear cost recovery clause.

IV. FPL'S INAPPROPRIATE METHODOLOGY FOR MEASURING LONG TERM FEASIBILITY OF UPRATES

Q. PLEASE SUMMARIZE THE METHODOLOGY THAT FPL EMPLOYS IN ITS ANALYSIS OF THE LONG TERM FEASIBILITY OF THE UPRATE PROJECTS.

A. FPL uses a methodology called the Current Present Value of Revenue Requirements (CPVRR). Using this methodology, the Company compares the revenue requirements flowing from a generation portfolio containing the EPU projects to a generation portfolio without the EPU projects for the entire life of the projects. The revenue requirements include fuel costs, capital costs, operating costs and all other costs related to operation of the plants. FPL calculates the present value of these costs and compares the sum of the revenue requirements for each generation portfolio. The generation portfolio with the lower CPVRR is considered to be the more economical portfolio. FPL excludes expenditures incurred prior to the analysis,

and includes only the remaining costs to complete the unit as capital costs, on the basis that the expenses incurred in prior periods are "sunk costs."

Q. DID YOU ADDRESS THIS CHOICE OF METHODOLOGIES IN THE TESTIMONY THAT YOU SUBMITTED IN DOCKET NO. 100009, PRIOR TO THE DECISION TO DEFER FPL-RELATED ISSUES TO THIS HEARING CYCLE?

A. Yes, I discussed my view of the shortcomings of the methodology as it is applied to the EPU uprate projects in the prefiled testimony that I presented in Docket No. 100009-EI. The comments that I made in that testimony remain valid.

Q. PLEASE TELL THE COMMISSIONERS WHY YOU BELIEVED THEN, AND CONTINUE TO BELIEVE NOW, THAT FPL'S METHODOLOGY, AS IT IS APPLIED TO THE EPU UPRATE PROJECTS, IS DEFICIENT.

A. The CPVRR method utilizing only cost to complete is appropriate for evaluating a project with known and stable cost. As I explained in my testimony in Docket No. 100009-EI, this method is not appropriate for evaluating the economics of a project for which the final estimated cost is rapidly increasing. If the estimated total cost is increasing at a rate that approximates the expenditures on the project, the cost to complete will be unchanged while the total project cost is rapidly increasing. This masks the true picture of whether the project is economically feasible.

Q. ARE THERE INDICATIONS THAT THE SHORTCOMING THAT YOU DESCRIBE IS AFFECTING THE VALIDITY OF THE RESULTS OF THE ANNUAL ANALYSIS THAT FPL CONDUCTS?

A. Yes. As discussed further in the testimony of OPC witness Brian Smith, it appears that the EPU projects provide net costs, not net benefits, to customers when total costs of the project are considered and compared to the alternative generation portfolio. Yet, FPL's feasibility analyses, which ignore past expenditures, continue to show that the EPU projects have economic benefit.

Q. HOW DOES THE METHODOLOGY THAT FPL EMPLOYS TO MEASURE LONG TERM FEASIBILITY OF ITS EPU UPRATE PROJECTS COMPARE TO THAT WHICH IT USES TO ASSESS THE FEASIBILITY OF ITS PROPOSED NEW TURKEY POINT NUCLEAR UNITS?

A. FPL uses a "breakeven" methodology to assess the feasibility of the new Turkey Point 6 and 7 units. In the breakeven methodology, FPL calculates the total capital cost at which the CPVRR of a generation portfolio including the new nuclear units equals the CPVRR of the alternate generation portfolio. If the cost of the new nuclear units exceeds the breakeven cost, the units are not economically feasible. If the cost is less than the breakeven cost, they are economically feasible.

Q. WHAT INFORMATION DOES A BREAKEVEN ANALYSIS PROVIDE, AND IN WHAT CIRCUMSTANCES IS THIS INFORMATION USEFUL?

A. A breakeven analysis provides the project total cost that the project must come in at or below for the project to be beneficial to ratepayers. This information is very useful for project managers to monitor the ultimate feasibility of the project as the project proceeds. If project cost estimates are rapidly increasing, the breakeven analysis provides an early warning to project managers that the project may no longer be feasible.

Q. HAS FPL CONDUCTED A BREAKEVEN ANALYSIS FOR ITS UPRATE PROJECTS THAT IS SIMILAR TO THE ONE IT PERFORMS FOR ITS PROPOSED NEW NUCLEAR UNITS?

A. No. In response to OPC Interrogatory No. 85 (included as Exhibit WRJ-3), which asks FPL to explain why a breakeven cost analysis was conducted for Turkey Point 6 and 7 but not for the EPU project, FPL states:

> It is not necessary to perform a breakeven cost analysis in order to evaluate a potential generating unit option.

This response further states:

> In its need filing for the Turkey Point 6 and 7 project, FPL chose to introduce a new breakeven cost calculation approach for that specific project. This approach was developed and utilized because of the more numerous areas of uncertainty that would affect the analysis of a much longer-term project.

In testimony (Sim May 2, 2011 page 10, lines 12 – 17), FPL asserts that the comparison of the cumulative net present value of revenue requirements is the appropriate method to use for the uprate projects. FPL offers no explanation for this position.

Q.DO YOU AGREE WITH FPL ON THIS POINT?

A. No. I believe the breakeven analysis is more appropriate than the CPVRR methodology for the uprate projects, just as it is the methodology of choice for the proposed new units.

Q. IN RESPONSE TO OPC INTERROGATORY 85 FPL DISCUSSES ITS USE OF A CPVRR ANALYSIS TO EVALUATE THE WEST COUNTY ENERGY

CENTER UNITS. DO YOU AGREE THAT THIS IS AN APPROPRIATE ANALOGY?

A. No, I do not. The use of a CPVRR evaluation is appropriate for the West County Energy Center Units. These are gas fired, combined cycle units of which hundreds have been constructed around the country. FPL has extensive experience, including recent experience, in constructing this type of unit. For a unit with high cost certainty, such as a combined cycle unit, a CPVRR evaluation is appropriate. This is clearly not the case for the EPU projects.

Q. WHAT SIMILARITIES EXIST BETWEEN THE PROJECT TO BUILD NEW UNITS AND THE UPRATE PROJECTS THAT LEAD YOU TO STATE THE SAME TYPE OF FEASIBILITY ASSESSMENT SHOULD BE PERFORMED FOR EACH?

A. Because of the complexity of the project and FPL's decision to "fast track" its construction prior to the completion of the engineering design activities that are necessary to quantify costs, the costs of the EPU uprate projects are as highly uncertain, if not more so, than the costs of the new Turkey Point units. (I will develop the level of uncertainty that supports this observation more fully in a later section of my testimony.) Accordingly, everything that FPL said about the suitability of the breakeven analysis to the proposed new nuclear units is fully applicable to the EPU uprate projects. As the uprate projects progress, it is important for project managers to recognize when the project cost forecast is approaching the point at which the project is not economically feasible. Reliance on only a CPVRR methodology can result in the continuation of a project when it is no longer economically feasible and when it is too late to make necessary changes.

Q. WHAT ACTION DO YOU RECOMMEND TO THE COMMISSION ON THIS SUBJECT?

A. I recommend that the Commission find the long term feasibility methodology that FPL applies to its uprate projects is inappropriate and should not be accepted. I recommend that the Commission find that the results of the feasibility analysis sponsored by FPL in this case are misleading, in that they mask what can be described a "shortfall in cost-effectiveness" of the uprate projects that I attribute to management imprudence. Finally, FPL should be directed to perform a breakeven analysis for its uprate projects similar to that which it prepares annually for its proposed new units.

V. IMPRUDENCE OF FPL'S MANAGEMENT OF THE EPU PROJECTS

Q. HOW IS FPL APPROACHING THE PLANNING AND CONSTRUCTION OF THE EPU UPRATE PROJECTS?

A. FPL is employing what is called a "fast track" approach.

Q. WHAT IS A "FAST TRACK" METHOD OF CONSTRUCTING A PROJECT, AND HOW DOES THAT DIFFER FROM A NORMAL APPROACH?

A. FPL witness Jones, in his May 2, 2011 testimony, at page 17, quotes the Project Management Institute's "A Guide to the Project Management Body of Knowledge", third edition. I will quote from the same book, page 146:

> Fast Tracking. A schedule compression technique in which phases or activities that normally would be done in sequence are performed in parallel. An example would be to construct the foundation for a building before all the architecture drawings are complete. Fast tracking can result in rework and increased risk. This approach can require work to be performed without

complete detailed information, such as engineering drawings. It results in trading cost for time, and increases the risk of achieving the shortened project schedule - (emphasis added)

Q. WHAT ARE THE ARCHITECTURE AND ENGINEERING DRAWINGS, AND WHY WOULD PROCEEDING WITHOUT COMPLETE DRAWINGS RESULT IN INCREASE COST FOR THE PROJECT?

A. The architecture and engineering drawings provide the final engineering design of the project. "Final engineering design" refers to the full specifications (size, materials, configuration, etc.) of the physical components to be installed. Proceeding without complete drawings and engineering can result in increased project costs in several ways. First, as described above, rework may be required if the final design is different from a preliminary design that is implemented on the project. In addition, until the final design is complete, the true scope of the project is not known and the final cost is impossible to estimate with any degree of accuracy. Thus, the actual final cost may be significantly more than the original estimate because the scope of work included in the original estimate was incomplete. Finally, an engineering and construction contractor will not be able to provide a firm bid on a project based only on preliminary engineering. Since the scope is not known, the risk is too great. Therefore, to protect itself, an engineering and construction contractor will only provide a bid on a "time and materials" basis. This results in a high likelihood of increased costs.

Q. DOES FPL PLAN TO PERFORM WORK WITHOUT COMPLETE DESIGN DRAWINGS?

A. Apparently, FPL is considering this option. The pace of the completion of design engineering drawings has been far slower than that which would be needed to support FPL's implementation schedule. I will develop this point in greater detail later in my

testimony. For my immediate purposes, I have attached as Exhibit WRJ-4 a graph that FPL uprate managers presented to FPL's Executive Steering Committee for the meeting of October 27, 2010. The graph depicts the actual amount of design engineering for the St. Lucie uprate project that has been completed over time, and shows the status (as of the October 2010 meeting) of the design engineering work relative to the stated target date of July 2011 for 90% completion of the work. To gain an appreciation for the degree to which the rate of completed design engineering would have to accelerate in order for FPL to achieve its current schedule for accomplishing design work, I have added a data point reflecting the status of engineering as of April 2011 -- the most recent date for which I have FPL data -- and then drawn a dotted line to connect that date to the target date. The steep dashed line shows that for FPL to adhere to its schedule for placing the additional megawatts of capacity associated with the uprate projects into service, either the speed with which FPL and Bechtel are performing design engineering would have to increase dramatically—at a rate which experience to date suggests would be highly unlikely—or FPL would have to perform construction without having completed design work, which would mean the ultimate costs would be even more uncertain. Of course, the alternative would be to slip the schedule. However, that would also have consequences in the form of increased costs and a smaller amount of time within which to generate fuel savings sufficient to offset the capital costs of the uprate additions before the nuclear units' operating licenses expire—all of which has implications for the projects' economic feasibility. To date, FPL's position has been that it intends to adhere to the existing schedule, notwithstanding the large amount of design engineering that remains to be done. That plan necessarily entails the type of cost risk to which the publication refers. FPL witness Jones, in his deposition, stated

that if portions of the design engineering are not ready in time to support the implementation schedule, it would be possible to undertake construction "at risk" in advance of the completion of design work (Jones deposition transcript, June 22, 2011, at pages 23 – 24). This, as his term "at risk" implies, is very risky from a cost, schedule and NRC point of view.

Q. IS FAST TRACKING APPROPRIATE FOR PROJECTS SUCH AS THE FPL EPU PROJECTS?

A. In my opinion, it is not. I agree wholeheartedly with FPL witness Jones when he says "The EPU project is of extraordinary managerial and technical difficulty. FPL's EPU project represents one of the largest and most complex nuclear design, engineering and construction projects undertaken in the nuclear industry since the construction of the last generation of U.S. nuclear plants." (Jones May 2, 2011 testimony, page 4, lines 16 – 19) However, this has been true of the projects from the outset. These projects represent a combined 450MWe of nuclear capacity, which is larger than some existing nuclear plants. Practically all of the last generation of nuclear projects to which Mr. Jones refers were built with variations of fast track, time-and-material contracts with disastrous results from a cost and scheduling standpoint. The utility industry said "never again." For the current generation of new nuclear units, utilities have chosen to negotiate contracts that have fixed scope and fixed price features to control cost and provide some degree of cost certainty to ratepayers , stockholders and regulators. This is the approach wisely taken by FPL and PEF in approaching the Turkey Point 6&7 and Levy 1&2 projects. Nevertheless, FPL has chosen to approach the EPU projects in the same, high risk manner in which the last generation of nuclear units were built.

Q. DOES FPL ACKNOWLEDGE THAT THE FAST-TRACK PROCESS HAS CAUSED PROBLEMS?

A. Yes. On July 25, 2009, the EPU project management gave a presentation to the Executive Steering Committee (ESC) revealing significant project cost increases. Part of the presentation consisted of project management executives discussing the "lessons learned" so far in the project. Concerning the fast-track process, the following bullets were included:

- Underestimated the risk and costs associated with the fast track project concept (Turkey Point 7/25/2009 update page 39-Bates 000094)
- Fast Track Modification Control(Turkey Point 7/25/2009 update page 40-Bates 000095)
    - Looked at the project only from a high level risk assessment
    - Should have don(e) a more detailed risk assessment when establishing the budget
    - Did not assess the quality of original site staffing due to fast tracking

These comments are from the Turkey Point presentation. Those from the St. Lucie presentation are essentially the same. (Bates number 000474 and 000475)

Q. DID THE PROJECTS START OUT AS FAST TRACK PROJECTS?

A. No. Based on information that OPC acquired from FPL's former Vice President – Uprates during discovery, it is my understanding that FPL contemplated proceeding with the uprate activities using FPL's normal project management process before senior management directed project managers to use the "fast track" approach to

attempt to place the additional megawatts on line by 2012. See Exhibit WRJ-11. Pages TR-25-28.

Q. IS THE STATUS OF PROJECT DESIGN COMPLETION AN IMPORTANT FACTOR IN THE SUCCESS OF A PROJECT?

A. In my opinion, it is extremely important. Completing the design is the key to knowing the cost and schedule. Prior to the design reaching a relatively high state of completion a significant amount of uncertainty exists in the key drivers of project cost and schedule including:

- Number of modifications to be installed;
- Estimated craft manhours;
- Estimated engineering costs;
- Estimated equipment costs;
- Estimated material costs;
- Licensing requirements;
- Project critical path.

As a result, cost and schedule estimates for a fast track project are highly uncertain. Actual projects costs are likely to exceed initial estimates as the design of the project is completed and the scope of the project is identified. Initiating a very large and complex project with a high level of cost and schedule uncertainty can lead to an unsuccessful project that does not provide the hoped for benefits.

Q. DOES COST CERTAINTY INCREASE AS DESIGN ENGINEERING ADVANCES TOWARD COMPLETION?

A. Yes, and FPL agrees. Page 10 of the September 9, 2009 presentation to the FPL Executive Steering Committee (ESC) states:

> Engineering and Design will complete in December 2010 improving cost certainty.

(As of April 18, 2011, only 31% of the engineering design projects, called modifications or "mods," have been completed.)

Page 7 of the March 8, 2010 presentation (a little over a year ago) to the ESC states:

> The project is at the very early stages of design. Cost certainty will improve as design is completed.

Q. THESE QUOTATIONS ABOVE REFER TO THE "DESIGN". WHAT IS MEANT BY THAT?

A. These statements are referring to design engineering. The project record is full of references to cost uncertainty usually associated with the status of the design engineering of project modifications. Design engineering on this project is divided into discrete packages that are associated with a particular project or modification. Examples are Turkey Point Unit 3 Main Feed Pump Replacement, Condensate Pump and Motor Replacement and Containment Cooling Modifications. The total EPU projects currently consist of 209 Mods, including 95 at St. Lucie and 114 at Turkey Point. Over the past year, the projects have grown from 191 to 209 Mods, and there likely will be more.

Q.WHAT IS THE STATUS OF DESIGN ENGINEERING AT THIS TIME?

A. As I said earlier, the latest information that I have is as of April 2011. It was supplied by the Company in its response to OPC Interrogatory 50. It states that 31% or 65 of the 209 Mods have completed design engineering allowing some cost certainty for those Mods. From January 2010 until the latest data provided by FPL in April 2011,

a period of 15 months, the FPL EPU organization has completed the design of 65 Mods (31%) or a little over 4 per month. They are scheduled to complete all 209 Mods by the end of 2011, or 144 over 8 months, or about 18 per month, requiring a significant increase in the completion rate achieved to date. WRJ-4, to which I referred earlier, is a graph from the October 27, 2010, meeting showing the schedule for Design Modification completion. The dotted line indicating the slow pace of the progress during the six months prior to April 18, 2011 and the additional line indicating the steep rate of acceleration that would be needed to enable FPL to remain "on course," provide a dramatic visual of the lack of engineering progress.

Q.COULD IT BE THAT A NUMBER OF MODS ARE ALMOST COMPLETE?

A. According to the data, there are 23 Mods that are between 90% and 100% complete and 37 that are between 30% and 90% complete. There are 67 that are between 0% and 30% complete and 17 that have not been started. I do not find these figures encouraging.

Q.IS THE COMPANY CONCERNED ABOUT THIS SITUATION?

A. Yes, they are. In the March 23, 2011, ESC presentation (Exhibit WRJ-5) on page 21, FPL states that:

> **Bechtel** (the EPC contractor) **has struggled with meeting pre-outage milestones for design modifications requiring increased focus and management attention.**

It also states that recovery plans have been established. FPL witness Jones stated in his deposition of June 22, 2011 that he has started contracting out some of the work to other engineering firms. (Jones deposition transcript, June 22, 2011, page 42, lines 22 – 24) With an outage starting in five months, this may be too little, too late. I have noted in the Company's response to OPC Interrogatory No. 56, which asks for the

outage schedule, that every outage date is prefaced with the tentative "currently scheduled."

Q. HAS LATE ENGINEERING ALREADY CAUSED DELAYS IN COMPLETING THE EPU PROJECTS?

A. Yes. The outage for completion of implementation of the first EPU project, St. Lucie 1, has slipped three months from [redacted] to [redacted]. The other outages have slipped some also. The ESC was told at its March 23, 2011, meeting (ESC slides, page 36) (Exhibit WRJ(FPL)-6)

> Moved outage start dates to provide additional time for engineering and planning, bringing more certainty with execution.

Q. WHAT IS THE CURRENT OVERALL STATUS OF THE PROJECTS?

A. As witness Jones indicates in his testimony, the projects are still in the early stages. Engineering is only 50% complete on a manhour basis and only 31% of the known project modification designs are complete. At this point, according to Dr. Sim, FPL has spent only $700 million out of $2.48 billion total. The first major EPU implementation and completion outage is coming up at St. Lucie 1, only some 4 ½ months away, and I would point out that for that outage only 15 of 45 currently identified Mods have completed engineering. FPL has hired an outside estimating firm to help cost out the completion on over 100 Mods for Turkey Point, indicating that they are a long way from having costs nailed down on construction at Turkey Point. (FPL Response to OPC Interrogatory No. 83) Because this Turkey Point estimating work is in the early stages, I expect that the estimating for construction at St. Lucie is also very early in its development. FPL has to spend almost $2 billion (according to their soft numbers) over the next 18

months for work that is, as of today's date, unplanned and unpriced. Based on what they know now, the almost $2 billion can only be an uneducated guess.

Q. ARE THERE OTHER ISSUES THAT ARE OF CONCERN FOR THE EPU COST AND SCHEDULE?

A. Yes. Witness Jones identifies a number of additional problems beside the design in his May 2, 2011, testimony: (Jones May 2, 2011, testimony, pages 35 – 38)

- Structural Integrity-This factor deals with the ability of existing buildings, floors, walls, etc. to support new, heavier equipment in place and also as the equipment is transported to its proper position in the plant. This engineering and planning work has not been accomplished and will cause additional engineering as well as construction.
- Limited Work and Staging Space—Because of the numerous mods to be accomplished at the same time, the planning and scheduling of simultaneous projects in the same work spaces are very difficult. This will cause additional engineering and labor costs.
- Rigging of Equipment—Mr. Jones states that some of the equipment to be replace or modified weigh up to 185 tons. Some of it is in places that are difficult to access. The additional costs are associated with engineering and implementation of this unplanned for work.
- Operating Plant Environment—I discussed this earlier. This means that every action taken inside a licensed nuclear power plant must take into account the plants NRC technical specifications. For example, there will some equipment that cannot be taken out of service unless a backup is in operation. Physical security, health physics, and radiation protection specifications must be

strictly adhered to. Fitness for duty requirements must be applied to all plant and contractor personnel.

- Work Order Planning and Integration with Routine Outage Activities—Work in operating nuclear facilities must be detailed with strict, specific procedures that must be developed before work begins. Also, during a refueling outage at a nuclear power plant, there is a beehive of activity that will be taking place normally without the installation of the 209 mods. Coordination of these efforts will increase cost and lengthen schedules.

Witness Jones indicates in his response to OPC INT 80 that:

> ...the extent and impact of these complicating factors cannot be fully determined until the associated engineering and construction planning activities are completed.

Q. WHAT DO YOU CONCLUDE CONCERNING THE MANAGEMENT OF THE FPL EPU PROJECTS?

A. I conclude that that the decision to fast track these projects and to pursue them without performing a breakeven analysis was an imprudent decision on the part of FPL management. I expect significant increases in project cost and more project delays in the coming two years. Project cost will not be known until the project is complete, rendering FPL's feasibility analyses of relatively little use. This fast track decision will likely result in costs that will significantly exceed the cost of the studied alternative.

Q. HOW WOULD YOU DESCRIBE THE NATURE OF FPL'S EPU PROJECTS, IN TERMS OF THE DEGREE OF UNCERTAINTY AND COMPLEXITY?

A. As witness Jones states in his testimony and I have discussed above, the EPU projects are the largest and most complex since the last generation on U.S. nuclear

plants. I would maintain that it is even more complex, because it must be accomplished within existing, operational nuclear plants, creating all the expensive complications that witness Jones discusses so well. I would add, however, that witness Jones' points regarding complexity have been known from the beginnings of the project, and demonstrate why the decision to "fast track" the uprate projects was so risky.

Q. IN YOUR OPINION, DO FPL'S ESTIMATED COSTS CONTAIN ENOUGH CONTINGENCY AT THIS TIME GIVEN THE PRESENT STATUS OF THE EPU PROJECTS?

A. No, they do not. In its answer to OPC Interrogatory 77, FPL states that its contingency in its current number is from 0 to 7%, which seems quite small considering that the engineering is only 50 % complete and the major construction has not yet been estimated to the level of detail necessary to set up construction contracts (See response to OPC Interrogatory 83.) In my opinion, a higher contingency commensurate with the current design and construction status would be appropriate.

Q. FPL'S PAST AND CURRENT FEASIBILITY ANALYSES INDICATE THE EPU UPRATE PROJECT HAVE BEEN AND ARE CURRENTLY COST-EFFECTIVE TO CUSTOMERS. DOES THAT ALLAY YOUR CONCERNS REGARDING THE SIGNIFICANT INCREASES IN THE CAPITAL COSTS THAT FPL HAS ESTIMATED IT WILL INCUR TO COMPLETE THE PROJECTS?

A. No, it does not. As I discussed above, the capital costs are still uncertain at this point. As OPC Witness Brian Smith points out, the EPU projects are not feasible under the base case assumptions when costs spent to date are included. FPL has not calculated a break-even cost and therefore does not know how much the ratepayers can afford for them to spend on the projects. I recommend that the Commission order FPL to immediately submit a breakeven analysis for the EPU projects. The St. Lucie and Turkey Point projects should be looked at separately in the analysis, with a break-even cost identified for each project.

Q. WHY DO YOU RECOMMEND SEPARATE ANALYSES FOR EACH PROJECT?

A. At current estimates, the Turkey Point project's estimated cost is approximately $250 million more than the estimate for St. Lucie. It is my understanding that the capacity increase for the Turkey Point EPU project is less than that for St. Lucie. In addition, the operating licenses for Turkey Point expire in 2032 and 2033, while St. Lucie's operating licenses expire in 2036 and 2043, giving St. Lucie 14 more unit-years of operation. Bear in mind that the economic feasibility of an uprate project depends on the ability of the additional megawatts of nuclear capacity to generate fuel savings over time that will more than offset the "price tag" of capital investment. The higher capital costs, lower increments of additional nuclear generating capacity, and shorter periods of service present a greater "hurdle" that the Turkey Point uprate activities must overcome to demonstrate economic feasibility. These differences between the two plants may possibly show that the St. Lucie EPU has been "carrying" the Turkey Point EPU.

In any event, the differences warrant separate analyses for the plant sites, and separate decisions with respect to whether each should continue.

Q. TO BE CLEAR, HOW HAS MANAGEMENT IMPRUDENCE IN MANAGING THE EPU UPRATE PROJECTS, IN YOUR OPINION, CONTRIBUTED TO THE SITUATION IN WHICH, WITH RESPECT TO WHETHER CUSTOMERS WILL REALIZE NET BENEFITS OR NET ADDITIONAL COSTS, THE ECONOMIC FEASIBILITY OF THE PROJECT IS QUESTIONABLE?

A. FPL's imprudent decision to fast track the EPU projects has led to a situation in which FPL is spending substantial sums of money very quickly while not knowing what the final bill is going to be. As FPL has acknowledged, it is impossible to know what the projects will cost until the designs are complete. The final designs were only 31% complete as of April 18, 2011. By using inaccurate, understated estimates of project costs and ignoring money already spent, the projects will always look feasible even though they may ultimately cost the rate payer more than the alternative generation portfolio.

Q. EVEN IF FPL'S EPU UPRATE PROJECTS TURN OUT TO BE NOT COST-EFFECTIVE, ISN'T THAT OFFSET BY THE PROJECT'S FUEL SAVINGS, FUEL DIVERSITY AND LOWER EMISSIONS OF GREENHOUSE GASES?

A. Project fuel costs are the majority of costs that are included in the CPVRR or breakeven analyses. Thus, these savings are already considered. The cost of greenhouse gases is also taken into account in CPVRR and breakeven analyses.

The value of fuel diversity has not been quantified, and should be a matter of Commission policy; however, the fuel diversity benefits cannot be evaluated in isolation from a realistic appraisal of economic feasibility, and would not be worth pursuing at some level of cost.

Q. WHAT DO YOUR OBSERVATIONS REGARDING MANAGEMENT IMPRUDENCE INDICATE WITH RESPECT TO THE AMOUNTS COLLECTED FROM CUSTOMERS IN 2009, 2010, 2011, AND THE AMOUNT THAT FPL WISHES TO COLLECT IN 2012?

A. I recommend that the Commission require the Company to determine a breakeven cost for each project. The Company should be allowed to collect future amounts up to the breakeven costs. Amounts for 2009, 2010, 2011 and 2012 could be collected as long as the breakeven values have not been exceeded. The amount of the breakeven cost could be reviewed and trued up each year.

Q. BASED ON YOUR TESTIMONY ON THE SUBJECT OF PRUDENCE, WHAT ACTION DO YOU RECOMMEND TO THE COMMISSION/

A I recommend that the Commission take the following actions:

1. Order FPL to submit a breakeven analysis for each EPU project, St. Lucie and Turkey Point.
2. Based on these analyses, determine if Turkey Point EPU should be continued.
3. Limit future recovery of EPU capital cost to the amounts determined in the final breakeven analyses as filed by FPL at the conclusion of the project and reviewed and approved by the Commission.

VI. THE 2009 ESTIMATES OF UPRATE-RELATED CAPITAL COSTS

Q. HOW DID YOU CONDUCT YOUR REVIEW OF THE 2009 ESTIMATES OF UPRATE-RELATED CAPITAL COSTS TO ASCERTAIN WHETHER THE MAY 2009 ESTIMATES REPORTED IN FPL's PREFILED TESTIMONY SHOULD HAVE BEEN UPDATED PRIOR TO OR DURING THE SEPTEMBER 2009 EVIDENTIARY HEARING?

A. As the Commission learned last year, in February 2010 FPL engaged Concentric Energy Advisors to investigate an employee complaint letter. In the letter the author expressed his concern about (among other things) the disregard with which managers of the uprate projects treated indications that the costs of the projects were rapidly increasing beyond the initial estimates, and the manner in which FPL would report those increases in the costs of the uprate projects to the Commission. In June 2010, John Reed, President of Concentric Energy Advisors, submitted to FPL a report in which Mr. Reed concluded that the May 2009 estimates contained in FPL's prefiled testimony were not the best information known by FPL at the time of the September 2009 hearing, and that FPL's witness should have revised the estimate to reflect the utility's then current view of the costs. As the Commission is also aware, FPL took issue with its consultant's finding in this regard prior to the time that the Commission deferred FPL-related issues to the 2011 hearing cycle. In this docket, Mr. Reed has reiterated his conclusion that FPL should have revised its estimate of capital costs upward prior to or during the September 2009 hearing, while FPL witnesses Art Stall and Armando Olivera contend that, because the updated cost information was subject to further review and efforts to control, FPL had no basis on which to revise its May 2009 prefiled testimony at the time of the September hearing. OPC asked me to perform an independent review of the facts and circumstances that gave rise to these

differing assertions, and form my own conclusion regarding whether FPL should have updated its May 2009 testimony to reflect higher projected capital costs at the time of the September 2009 hearing.

Q. WHAT INFORMATION DID YOU REVIEW IN FORMULATING YOUR OPINION?

A. The documents and materials that OPC requested in discovery and that I reviewed for this purpose include the bulk of the materials that Mr. Reed listed in his June, 2010 report. In addition to these materials, I reviewed FPL's answers to OPC's interrogatories, FPL's prefiled testimony in this docket and the transcripts of the depositions of Art Stall, John Reed, and Terry Jones. By telephone, I monitored the deposition of former FPL Vice President-Uprates Rajiv Kundalkar, who sponsored the May 2009 prefiled testimony on the subject of capital cost estimates during the September 2009 hearing.

Q. PLEASE DESCRIBE THE FACTS ON WHICH YOU BASE YOUR CONCLUSION THAT FPL DID NOT PRESENT THE BEST AVAILABLE INFORMATION REGARDING ITS ESTIMATE OF THE COSTS OF COMPLETING THE UPRATE PROJECTS DURING THE SEPTEMBER 2009 EVIDENTIARY HEARING.

A. The original estimate for the EPU projects was based on conceptual scoping studies and indicative bids from the EPC contractor. Detailed engineering was essentially at zero percent, and there was a high degree of uncertainty in the project estimate. During 2009, EPU project management made monthly presentations on the EPU project, including cost estimates, to FPL's Executive Steering Committee (ESC). In

the May 2009 presentation to the ESC, the total cost forecast for both St. Lucie and Turkey Point remained the same as the original estimate. (OPCPOD1, No. 9, FPL000103 – 000132) (Exhibit WRJ-7) However, a closer examination of the May 2009 forecasts shows that the total of costs for engineering, materials and implementation had increased from the original estimate by over 25% for St. Lucie from ($475 million to $595 million) and over 27% for Turkey Point from ($546 million to $696 million).

Q. PLEASE EXPLAIN HOW THESE CATEGORIES COULD HAVE INCREASED IF THE OVERALL ESTIMATE DID NOT CHANGE.

A. At the outset of the project, the uprate managers included a component in the estimate that they labeled "Scope not estimated." Thereafter, each increase in costs that the managers identified was assumed to reduce the "Scope not estimated" by the same amount.

Q. DO YOU AGREE WITH THE MANNER IN WHICH FPL USED "SCOPE NOT ESTIMATED" TO MAINTAIN A CONSTANT PROJECT ESTIMATE?

A. No. Necessarily, the premise for the practice is that FPL had accurately quantified, to the dollar, the ultimate cost of the project, when in fact FPL, because of its decision to "fast track" the decision, had little grasp on the costs that would be incurred. FPL had no basis for using the 'Scope not estimated" as a "balancing adjustment." In his report, John Reed of Concentric Energy Advisors also criticized this practice.

Q. PLEASE CONTINUE.

A. The Cost and Budget Summary maintained a constant Total project cost by reducing the cost allocation for "Scope not estimated" from $182 million to $69 million for St. Lucie and from $204 million to $50 million for Turkey Point. As of May 2009 there was clearly upward pressure on the estimated cost of the project. In the June 2009 ESC presentation the Total cost estimate for St. Lucie and Turkey remained the same but the "Scope not estimated" component had dwindled to $14 million for St. Lucie, a 92% decrease from the original $182 million and to $28 million for Turkey Point, an 86% decrease from the original $204 million. (OPCPOD1, No. 11, FPL000191 – 000219) Projects costs had not stabilized and were continuing to increase. At the July 2009 ESC meeting, the current forecast for St. Lucie was shown to have increased by $139.6 million above the original estimate and the current estimate for Turkey Point was $160.6 million above the original estimate. (OPCPOD1, No. 5, FPL000056 – 000095 and OPCPOD1, No. 12, FPL000424 – 000475) (Exhibit WRJ-8 and Exhibit WRJ-9) In June 2009, the allowance for "Scope not estimated" had been exhausted, and FPL had to fully recognize the increase in project cost in the July ESC meeting. The July 2009 ESC presentations included a detailed, line-by-line presentation of costs as FPL management attempted to identify and understand the reasons for the cost increases.

Q. ARE THERE OTHER ASPECTS OF THE JULY 2009 PRESENTATION TO THE ESC THAT ARE SIGNIFICANT?

A. Yes. The July 2009 ESC presentation also reflected the results of the recent efforts by the EPU management team to rein in Bechtel's increasing cost estimates. The July 2009 ESC presentation also contains an updated feasibility analysis conducted by an FPL analyst (not Dr. Sim) to examine whether the EPU projects remained

economically feasible (using FPL's methodology) at the new higher cost estimates. The feasibility analysis in the July 2009 ESC presentation used a combined EPU total cost of $1.706 billion, compared to the $1.407 billion used in the original Determination of Need filing and in FPL's 2008 and 2009 NCRC testimony. See page 50 of Exhibit WRJ-9.

Q. WHAT HAPPENED AFTER JULY 2009?

A. Upward cost pressures continued, as the August 2009 cost estimate shown in the September 2009 ESC presentation increased again from $1.706 billion to $1.850 billion. From the above presentation demonstrating continued increasing costs throughout the spring and summer of 2009 and the use of the increased cost estimates in the updated feasibility analysis, I conclude that the cost estimate submitted in FPL's prefiled testimony in May 2009 was clearly stale and should have been updated prior to or during the hearing in September 2009. In addition, FPL should have updated the feasibility analysis that it presented at the September 2009 hearing to reflect the increased estimates of capital costs.

Q. HOW WOULD YOU COMPARE YOUR CONCLUSION WITH THAT OF CONCENTRIC ENERGY ADVISORS, AS EXPRESSED IN ITS JUNE 21, 2010, INVESTIGATION REPORT?

A. I reached the same conclusion as Mr. Reed with respect to whether the capital cost estimate should have been updated, with one difference. Mr. Reed approached his task from the standpoint of whether FPL adhered to its own internal policies regarding, among other things, communications to the Commission. My approach is to assess whether FPL met *Commission* requirements for submissions in the nuclear cost recovery clause, including the requirement of Rule 25-6.0423 that it provide an

analysis of the long term feasibility of the uprate project annually. Regardless of the methodology that is used, a proper analysis of the long term feasibility of the uprate project requires that the best available information regarding the capital costs of the project be used as an input to the analysis. This was not done in the September 2009 hearing.

Q. FPL HAS ASSERTED THAT FPL HAD NO OBLIGATION TO UPDATE THE TESTIMONY ON CAPITAL COSTS BECAUSE DESIGN ENGINEERING HAD NOT BEEN COMPLETED FOR THE PROJECTS. DO YOU FIND THIS PERSUASIVE?

A. No, I do not. Design engineering for the project will not be complete until shortly before the project itself is complete. For example, as of April 18, 2011 design engineering has been completed for only 31% of the Plant Change Modifications. (Response to OPC Interrogatory 50) The logical extension of FPL's assertion is that FPL would need to update its initial estimate of capital costs (formed when little engineering had been done) and adjust the capital cost input to its ongoing economic feasibility analyses only when the project is virtually complete. This approach would frustrate the ability of the Commission to monitor the feasibility of the project over time. Further, when FPL updated capital costs in May 2010, design engineering was only 10% complete.

Q. FPL HAS ALSO CONTENDED THAT AT THE TIME OF THE JULY 2009 PRESENTATION TO THE ESC THERE EXISTED OPPORTUNITIES TO REMOVE SCOPE FROM THE PROJECTS, AND THEREFORE THE

NUMBERS WERE PRELIMINARY AND NOT YET READY TO REPORT TO THE COMMISSION. HOW DO YOU RESPOND?

A. I respond in two ways. First, the July 2009 cost estimates were the result of extensive line by line analyses of the capital costs which included identification and quantification of all known reductions in scope. The reductions in scope were quantified and reflected in the revised estimate of capital costs. See page 9 of Exhibit WRJ-9. It is doubtful that additional reductions in scope would be identified at a later date that would have a significant impact on the July 2009 estimate. This is borne out by the fact that FPL increased its estimate of capital costs materially above the July 2009 estimate in the following month. Secondly, FPL could have provided the latest cost estimates and informed the Commission of their preliminary nature with a promise to provide the Commission with the latest update when it became more firm. FPL should have informed the Commission of this latest cost estimate.

Q. FPL SAYS THAT IT DIRECTED ITS UPRATE MANAGERS TO REDUCE COSTS BY "PUSHING BACK" AGAINST BECHTEL. IT SAYS THAT BECAUSE IT HAS NOT ACCEPTED BECHTEL'S ESTIMATE, IT WAS UNDER NO OBLIGATION TO REGARD THE JULY 25 ESTIMATES AS HAVING SUPERSEDED THE MAY TESTIMONY. WHAT IS YOUR RESPONSE?

A. Again, the July 2009 cost estimates include the results of FPL's initiatives to push back against Bechtel. In the May 2009 and June 2009 presentations, uprate managers laid out a program of steps through which they intended to resolve their challenges to Bechtel's new, higher estimates. The program contemplated a flurry of measures designed to bring closure to the challenges within a 30 day time frame ending in late

June 2009. A table in the implementation section of the July 2009 report for both St. Lucie and Turkey Point presents the results of extensive negotiations with Bechtel that are incorporated in the July 2009 cost estimate. These tables entitled "Bechtel proposal Estimate Changes" show the following cost changes resulting from the negotiations with Bechtel::

- Original P50 Submittal;
- Most Likely P50;
- Most Likely P50 Rev 1;
- Reduced Scope Hours;
- Consolidated Procurement;
- Reduced Engineering manhours and Construction.

Page 28 of 52 of Exhibit WRJ-9 is a bar graph that was part of the presentation to the ESC during the July 2009 meeting. It indicates that FPL's program of challenging Bechtel's numbers resulted in a decrease in Bechtel's estimate of EPC-related costs from the [redacted] contained in Bechtel's May 12 presentation to [redacted] by the time the package for the July meeting was prepared. In short, negotiations with Bechtel were far along at the time the July 2009 estimate was developed and meaningful reductions in Bechtel's cost estimate were clearly identified.

Q. FPL HAS ALSO MAINTAINED THAT BECAUSE IT WAS CONSIDERING EITHER SELF--PERFORMANCE OR REPLACING BECHTEL WITH A DIFFERENT EPC CONTRACTOR, THE JULY 2009 PRESENTATION WAS TOO PRELIMINARY TO HAVE THE EFFECT OF SUPPLANTING THE MAY 2009 TESTIMONY. DOES THIS CONTENTION PERSUADE YOU

THAT FPL HAD NO OBLIGATION TO UPDATE ITS TESTIMONY BY THE TIME OF THE SEPTEMBER 2009 HEARING?

A. No, it does not. In July 2009, Bechtel was the primary EPC contractor and any steps to self-perform or replace Bechtel were very preliminary. FPL could have qualified their July 2009 estimate by stating that they were evaluating a self-performing option or replacing Bechtel. In any event, FPL should have notified the Commission of the July 2009 estimate with whatever qualifiers were needed.

Q. WOULD REPORTING A HIGHER ESTIMATE OF CAPITAL COSTS HAVE UNDERMINED FPL'S ABILITY TO NEGOTIATE WITH BECHTEL FOR THE BENEFIT OF CUSTOMERS?

A. No. Aside from the fact that the negotiations had borne fruit by July 25, 2009, it is important to remember that the EPC contract with Bechtel is essentially an agreement to compensate Bechtel for "time and materials" associated with its services. At issue at the time was Bechtel's estimates of labor that would be required. While of course FPL's objective properly was and is to require accurate and reasonable estimates, reporting a higher estimate to the Commission would not jeopardize FPL's ability to hold Bechtel to only the levels of staffing that would be required to actually perform the project as it progressed by supervising Bechtel and reviewing invoices so as to guard against paying for inefficiencies.

Q. FPL POINTS TO THE FACT THAT ITS PROCESS FOR EVALUATING CAPITAL COSTS WAS NOT FINISHED UNTIL SHORTLY PRIOR TO THE MAY 2010 FILING FOR THE FOLLOWING YEAR, AT WHICH TIME IT PRESENTED ITS FIRST REVISION TO THE ORIGINAL ESTIMATE OF

CAPITAL COSTS. DOES THIS SUPPORT FPL'S CONTENTION THAT THERE WAS NO NEED TO REVISE THE MAY 2009 ESTIMATES DURING THE SEPTEMBER 2009 HEARING?

A. No. FPL has argued that a revision could not be made until design engineering had been completed. At the time of the May 2010 testimony, in which FPL provided a revised estimate that increased the original estimate by between $252 million and $502 million, by its own account only 10% of the design engineering of the project had been completed. (Testimony of Terry Jones dated May 3, 2010 page 6, lines 8-9 and 15 and page 36, line 12)

Q. WHAT IS THE SIGNIFICANCE OF THE UPDATED FEASIBILITY STUDY THAT MANAGERS INCLUDED IN THE JULY 2009 PRESENTATION, AND TO WHICH MR. JOHN REED REFERRED IN CONCENTRIC ENERGY ADVISORS' JUNE 2010 INVESTIGATION REPORT?

A. The fact that the managers of the uprate project asked for and obtained a revised feasibility study taking into account both anticipated capacity increases and increased capital costs reinforces my conclusion that FPL had moved beyond the May 2009 information.

Q. IN RESPONSES TO OPC DISCOVERY REQUESTS, FPL CONTENDS THAT THE PORTION OF THE JULY 2009 PRESENTATION TO THE ESC THAT IS CAPTIONED AS A "FEASIBILITY ANALYSIS" WAS INSTEAD A "SENSITIVITY STUDY" OF THE ORIGINAL FEASIBILITY ANALYSIS, PERFORMED TO MEASURE THE SENSITIVITY OF THE ORIGINAL TO CHANGES IN CAPITAL COSTS AND MEGAWATT INCREASES. DOES

THIS CHARACTERIZATION LESSEN THE SIGNIFICANCE OF THE EXERCISE, IN YOUR OPINION?

A. No. It merely means that FPL held constant all of the variables except those for which its most recent information exhibited material changes. That is exactly what I would expect FPL to do with new information regarding higher capital costs and/or increased capacity. It does not matter whether the calculations are labeled an updated feasibility analysis or a sensitivity study-the significance is the same under either designation.

Q. IN YOUR OPINION, SHOULD FPL HAVE PROVIDED THIS REVISED FEASIBILITY INFORMATION TO THE COMMISSION DURING THE SEPTEMBER 2009 HEARING IN ADDITION TO THE REVISED ESTIMATE OF CAPITAL COSTS, EVEN IF THE RESULTS CONTINUED TO INDICATE THE PROJECTS WERE COST-EFFECTIVE UNDER FPL'S METHODOLOGY?

A. Yes. FPL has an obligation to keep the Commission fully informed with the latest available information as the EPU project progresses. This includes material changes in schedule, cost and/or overall feasibility that occur following the regular submission date. In addition to a snap shot in time that these data provide, they also allow the Commission to develop a trend over time which is important in determining the ultimate success of the project.

Q. HAVE YOU SEEN ANY INDICATIONS THAT FPL'S MANAGERS CONTEMPLATED UPDATING THE MAY 2009 TESTIMONY AT ANY POINT PRIOR TO THE SEPTEMBER 2009 HEARING?

A. Based on my review, I believe it is clear that, as of the August-September 2009 time frame, FPL's Vice President-Uprates and FPL's senior management had communicated on the subject, and had adopted the position that updating the capital costs was not called for. I did review one document that indicates to me the witness was considering updating his testimony earlier in the process.

Q. PLEASE CONTINUE.

A. In discovery, OPC obtained, and I reviewed, an email that Rajiv Kundalkar, the FPL witness who sponsored the 2009 cost estimate, wrote to FPL's Chief Nuclear Officer on May 30, 2009. I am attaching it as Exhibit WRJ-10.

The memorandum indicates to me that Mr. Kundalkar was considering updating his testimony once the pending challenges to Bechtel's estimates were resolved at the time he wrote it.

Q. PLEASE EXPLAIN.

A. In this email, after first alluding to the fact that the Commission Staff had requested copies of all presentations on the uprates to the ESC and the Chief Nuclear Officer, Mr. Kundalkar stated:

> In previous planning discussions with Armando and the legal staff we had made them aware of the expected $$ estimated could be higher than the $750 million for PTN and the $650 million for PSL based on Bechtel's recent view. Therefore, in the May testimony we indicated that FPL will update this related information as soon as final analysis and designs are completed. Armando's advise (sic) at the time was to introduce the topic and collect/finalize the facts and scope for further submittal at appropriate time.
>
> Therefore, the timing of getting the scope firmly defined and validation of estimates becomes very important. We

have laid out a schedule that Bechtel and the PTN/PSL/JW teams are working to be ready for FPL-Bechtel meeting scheduled for 6/12/09. Also, we will need the same information for your review and Jim Robo meeting in mid-late June.

I believe the document shows that Mr. Kundalkar was concerned at the time that the PSC Staff would observe the disparity between the estimates he included in his May 2009 prefiled testimony and the higher estimates that were contained in presentations to senior management that Staff had requested. It appears to me that at the time he was writing he regarded the conclusion of the period in which managers were attempting to bring closure to the Bechtel-related challenges—scheduled to end in late June—as the point at which pending issues of scope and estimates could be clarified and the disparity between his testimony and presentations to management could be addressed.

Q. WHAT DID MR. KUNDALKAR SAY ABOUT THE DOCUMENT?

A. During his deposition, Mr. Kundalkar denied that the memorandum is related to the subject of updating the May testimony. He maintained that the higher Bechtel estimates were "unvetted" and referred to the status of design engineering. I am attaching the pertinent portion of the transcript of Mr. Kundalkar's deposition as Exhibit WRJ-11 (see pages TR-56-76). However, even if the witness either had no intention of updating testimony at the time or changed his mind after he wrote the memorandum, based on the other matters I have described my opinion is that FPL should have updated the testimony on estimated capital costs no later than the September 2009 hearing.

Q. DOES THE FACT THAT DURING THE SEPTEMBER 2009 HEARING WITNESSES KUNDALKAR AND SIM WERE AVAILABLE ON THE STAND TO ANSWER ANY QUESTIONS REGARDING POSSIBLE INCREASES ALTER YOUR CONCLUSION?

A. No.

Q. WHY NOT?

A. In the first place, I believe FPL had a responsibility to be forthcoming with the information. In addition, neither witness was in a position to provide full information in response to questions. This is because FPL did not share the fact of a revised feasibility study containing higher (by $300 million) July estimates of capital costs, much less the even higher (by $144 million) August estimate, with Dr. Sim, who sponsored the feasibility study that was based on the May 2009 estimate. Further, FPL did not inform Mr. Kundalkar, who helped present the July data to the ESC shortly before he was assigned to a different position, that the uprate managers had increased the estimate of capital costs again (by approximately $144 million) in August 2009 before he testified in September 2009. See Exhibits WRJ-12, WRJ-13, and WRJ-11, at pages TR-131-134.

Q. BASED ON YOUR REVIEW AND ANALYSIS, WHAT DO YOU RECOMMEND THAT THE COMMISSION FIND?

A. I recommend that the Commission find that FPL failed to provide the best, most current information regarding its estimate of capital costs during the September 2009 hearing when it elected to not update and revise the May 2009 prefiled testimony with information that was developed between the May filing date and the July 25, 2009

meeting of the ESC. Further, because the capital cost estimate is a key input to the feasibility analysis required by Rule 25-6.0423, F.A.C., to satisfy that requirement FPL should have updated the feasibility analysis to incorporate the more recent estimate.

VII. TURKEY POINT UNITS 6 AND 7

Q. HAVE YOU REVIEWED THE STATUS OF TURKEY POINT 6 AND 7 AND THE FPL'S MANAGEMENT OF THIS PROJECT?

A. Yes, I have. I am not taking issue with FPL's approach to the Turkey Point 6 and 7 project at this time.

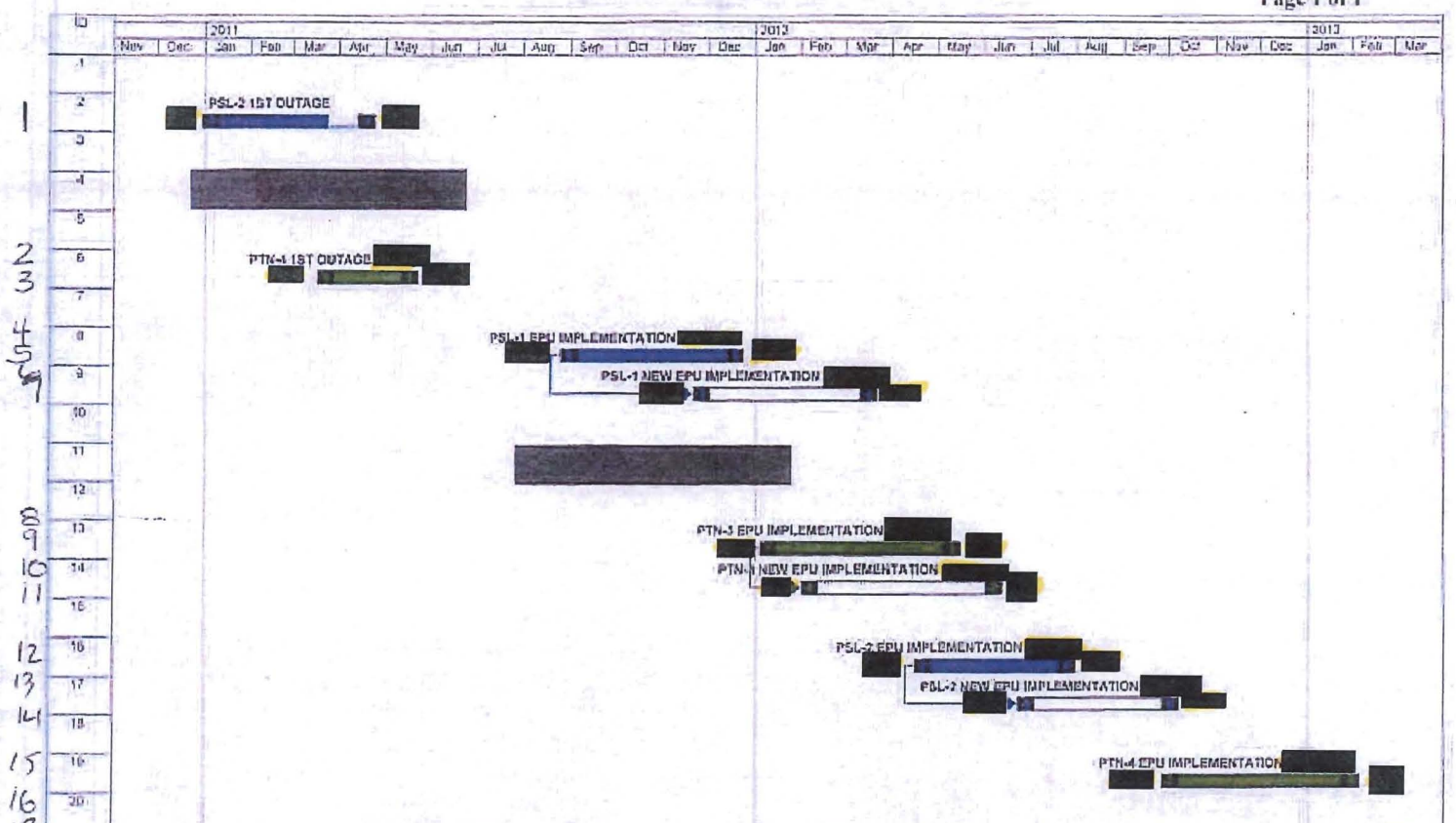
Q. DOES THAT CONCLUDE YOUR TESTIMONY?

A. Yes, it does.

Moved outage start dates to provide additional time for engineering and planning, bringing more certainty with execution

Docket No. 110009-EI
William R. Jacobs, Jr.
Exhibit WRJ(FPL)-6
March 2011 ESC Slide Re
Change in Outage Start Date
Page 1 of 1

Operating Schedule



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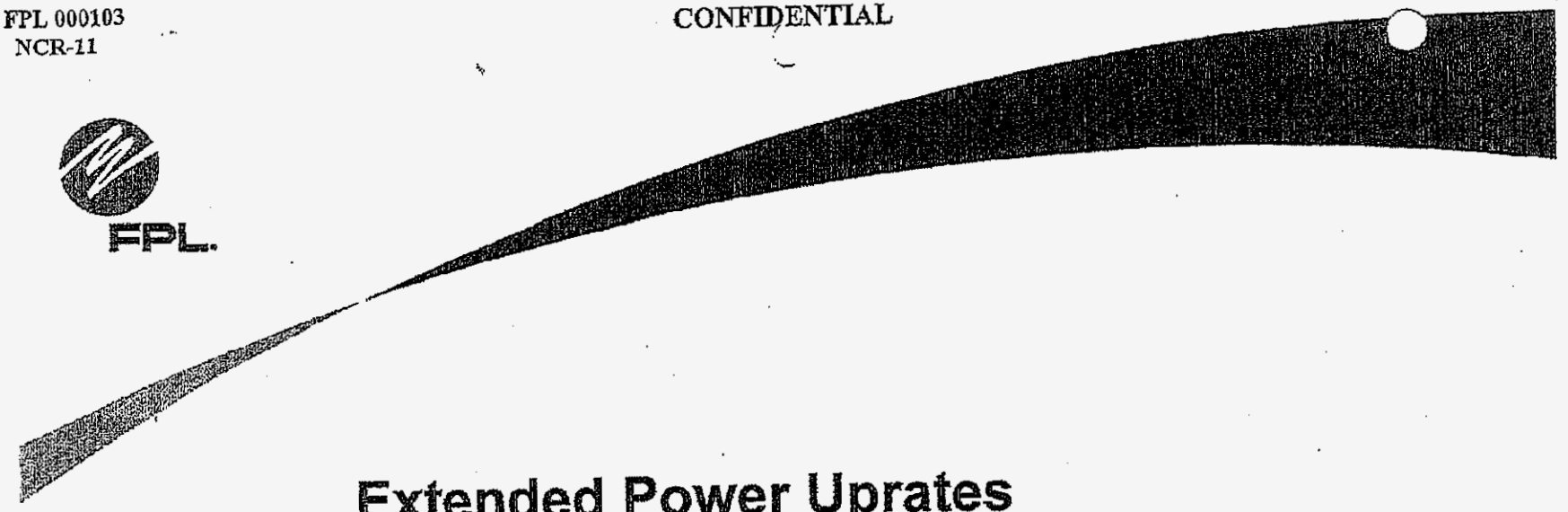

Extended Power Uprates
Executive Steering Committee Update
Saint Lucie & Turkey Point

May, 2009

Docket No. 110009-EI
William R. Jacobs, Jr.
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Agenda

- Executive Summary
- Costs & Budget Summary
- Project Dashboard
- Plans & Targets
- Regulatory – LAR
- Bechtel Integration
- Heat Balance
- Nuclear Cost Recovery
- Scope Validation
- PTN ISFSI Location
- Risk Exposures & Mitigation
- KPIs
- Supplemental Information

Executive Summary

PSL/PTN Executive Summary

	Issues	Impact / Plan
1	**Nuclear Cost Recovery**	- Over 200 Interrogatories and data requests responded to on time - FPSC Audit of Project Controls Completed - Sat - Final Testimony Completed - 5/1/09 Page 20
2	**PTN ISFSI**	-FDEP Approved Site Certification - Miami-Dade zoning restriction – resolution still open - Need to agree upon scope and start construction by July 1, 2009 Page 22
3	**LAR Final Plans**	PSL1 EPU Submittal: September 2009 PSL2 EPU Submittal: January 2010 PTN AST Submittal: June 2009 PTN EPU Submittal: June 2010 Page 12
4	**Scope**	Performing Scope Validation for Separate & Apart Page 21
5	**Bechtel Staffing**	Bechtel preliminary estimate greater than indicative bid; refining estimates and developing Level 1 (Best Case, Worst Case, and P50) Page 14

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Cost and Budget Summary

Saint Lucie

Cost Category	Proforma Budget $MM	4/1/2009 Forecast $MM	5/1/2009 Forecast $MM	Source of Cost Estimate
Engineering	$100	$108	$108	100% Contracts and Staff
Materials	$269	$257	$257	77% Contracts
Implementation	$106	$230	$230	88% Contracts, Vendor Estimate
Subtotal	**$475**	**$595**	**$595**	85% Contracts
Scope not estimated	$182	$75 *	$69	Ref Risk Matrix
Total	**$657**	**$670**	**$664**	
T&D Estimate	$25	$12	$18	FPL Estimate
Total	**$682**	**$682 ***	**$682**	
				* corrected

Notes:

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Cost and Budget Summary

EPU Budget Details – St. Lucie

100%	4/1/2009 $MM	5/1/2009 $MM	
Engineering			
Engineering & Staff	[redacted]	[redacted]	Awarded - T&M - FPL and Contractors
NSSS Analysis for LAR			Awarded - T&M - Westinghouse
BOP Analysis for LAR			Awarded - T&M - SWEC
Modification Engineering			Awarded - T&M - Bechtel (E&C Scope)
	108.3	108.3	
77%			
Materials			
Turbine & Generator Components	[redacted]	[redacted]	Awarded - FP - Siemens
Turbine Gen Sub Systems			FPL estimate
S/G Mods			N/A
Main Transformers			Awarded - FP - Siemens
FW Heaters			Awarded -FP - TEI
Condensate Pumps & Motors			FPL estimate (FPL long lead material)
FW Pumps & Motors			Awarded - FP- Flowserve
MSR, HT Exchangers			Awarded - FP - TEI
Misc., Cntrl Rm, LEFM, Circ Wtr pp			RFP bid in review (Awarded LEFM)
Misc. Materials			Awarded - Bechtel
	257.0	257.0	
88%			
Implementation			
Turbine & Generators	[redacted]	[redacted]	Final negotiations in progress - Siemens
S/G Mods			N/A
Main Transformers			Awarded - T&M - Bechtel (E&C Scope)
FW Heaters			Awarded - T&M - Bechtel (E&C Scope)
Condensate Pumps & Motors			Awarded - T&M - Bechtel (E&C Scope)
FW Pumps & Motors			Awarded - T&M - Bechtel (E&C Scope)
MSR, Condenser, Valves			Awarded - T&M - Bechtel (E&C Scope)
Misc. BOP Instr. LEFM, Cntrl Rm, C			Awarded - T&M - Bechtel (E&C Scope)
Outage Ext.			FPL estimate
85%	229.6	229.6	

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Cost and Budget Summary

Turkey Point

Cost Category	Proforma Budget $MM	4/1/2009 Forecast $MM	5/1/2009 Forecast $MM	Source of Cost Estimate
Engineering	$99	$115	$115	100% Contracts and Staff
Materials	$257	$243	$243	75% Contracts
Implementation	$190	$339	$339	71% Contracts
Subtotal	**$546**	**$696**	**$696**	77% Contracts
Scope not estimated	$204	$54	$50	Ref Risk Matrix
Total	**$750**	**$750**	**$746**	
T&D Estimate	$20	$20	$24	FPL Estimate
Total	**$770**	**$770**	**$770**	

Notes:

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Cost and Budget Summary

EPU Budget Details – Turkey Point

100%	4/1/2009	5/1/2009	
Engineering	$ MM	$ MM	
Engineering & Staff	[redacted]	[redacted]	Awarded - T&M - FPL and Contractors
NSSS Analysis for LAR			Awarded - T&M - Westinghouse
BOP Analysis for LAR			Awarded - T&M - SWEC
Modification Engineering			Awarded - T&M - Bechtel
	114.6	114.6	
75%			
Materials			
Turbine Generator & Components	[redacted]	[redacted]	Awarded - FP - Siemens
S/G Mods			FPL estimate
Misc. Przr Lvl, Rx Hd, Cntrl Rm			FPL estimate
Main Transformers			Awarded - Siemens
FW Heaters			Awarded - FP - TEI
Condensate Pumps & Motors			Bid Evaluation in Progress
FW Pump & Motors			Bid Evaluation in Progress
MSR, Condenser			Awarded - FP - TEI
Valves			FPL estimate
TBCW and Cont Cooling HTX (4)			FPL estimate
Misc. Materials			Awarded - Bechtel
	242.7	242.8	
71%			
Implementation			
Turbine Generator & Components	[redacted]	[redacted]	Final negotiations in progress - Siemens
S/G Mods			FPL estimate
Misc. Przr Lvl, Rx Hd, Cntrl Rm			FPL estimate
Main Transformers			Final negotiations in progress - T&D Dept.
FW Heaters			Awarded - T&M - Bechtel
Condensate Pumps & Motors			Awarded - T&M - Bechtel
FW Pump & Motors			Awarded - T&M - Bechtel
MSR, Condenser, Valves			Awarded - T&M - Bechtel
Outage Extension			FPL estimate
77% CDR 1.66-3 EPU	338.7	338.7	

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Project Dashboard- PSL

	LAR Submittals	Mod Packages (9 month milestone)	Preps & Plans (includes long lead Material delivery)	Execution
Schedule	Staggered submittals will allow better resource allocation for FPL, W, SHAW, and Plant (PSL-2 12 months float)	11 of 12 mods with negative float beyond station milestone Recovery Plan being Developed	Work Order Planning behind due to Mod Engineering approvals for Spring 2010	No Negative Float U-1 Spring 2010 Proforma - 55 days
Contracts	Major Contracts issued for LAR support	Contracts issued for Mod Engineering	Contract issued to Bechtel	Contract issued to Bechtel
Staffing & Vendor Support	W and Shaw resources less challenged with revised submittal plan Bi-weekly report provided by WEC PM; will continue to monitor	Quality issues with Bechtel provided Design Packages	Bechtel total staffing and associated ramp rate greater than proposal, review in progress	Implementation team on site and planning milestones met
Other Issues or Challenges	8 Potential mods resulting from LAR analysis - Added 1 due to Unit 2 Steam bypass capacity	1. Rod Control Phase 2 -4 will be evaluated post spring Outage 2. Validating scope for Separate & Apart and process improvements	Core team identified; staffing after Outage	CP: Generator Rewind (Outage duration -66 days) 7.7 days best case savings identified Generator Hot Spots could extend Outage (5- 7 days)
Costs ICDR 1.6b-3 EPU	2009 Budget for Engineering & Staff: $ 54.5 MM 2009 YTD Budget for Eng. & Staff: $ 21.1 MM 2009 YTD Actual for Eng. & Staff: $ 17.4 MM		2009 Budget for Mtls & Implementation: $88.6 MM 2009 YTD Budget Mtls & Implementation: $17.7 MM 2009 YTD Actual for Mtls & Implementation: $07.5 MM	

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Project Dashboard- PTN

	LAR Submittals	Mod Packages (9 Month Milestone)	Preps & Plans (includes long lead Material delivery)	Execution
Schedule	AST Station review NRC will accept EPU LAR after AST LAR Approval	No negative Float to Station Milestone	No Negative float	No Negative Float U-3 Fall 2010 Proforma - 55 days
Contracts	Major Contracts issued for LAR support	Contracts issued for Mod Engineering	Contract issued to Bechtel	Contract issued to Bechtel
Staffing & Vendor Support	W and Shaw resources still challenged; some relief from EPU submittal schedule change Monthly report provided by Shaw PM; will continue to monitor	Need FPL Design Engineering Manager Other staffing levels under review	Bechtel total staffing and associated ramp rate greater than proposal - review in progress	Implementation team on site and planning milestones met
Other Issues or Challenges	4 Potential mods resulting from LAR analysis	Options review of BOP Cond/FW plans	Site Interface Model Draft Complete. Review with Station Leadership post RFO. Potential Site Capacity Challenge due to: EPU, RTE, Policy 14, ISFSI	CP: Condenser & FW Heaters (Outage duration -70 days)
Costs	2009 Budget for Engineering & Staff: $ 56.5 MM 2009 YTD Budget for Eng. & Staff: $ 19.3 MM 2009 YTD Actual for Eng. & Staff: $ 14.4 MM		2009 Budget for Mtls & Implementation: $ 79.2 MM 2009 YTD Budget for Mtls & Imp: $ 40.9 MM 2009 YTD Actual for Mtls & Imp: $ 07.7 MM	

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Plans and Targets

Saint Lucie

	PROFORMA		FORECAST	
	U-1	U-2	U-1	U-2
LAR Submittal	9/01/09	9/01/09	9/30/09	1/31/10
1st Outage Duration	[redacted]	[redacted]	[redacted]	[redacted]
2nd Outage Duration	[redacted]	[redacted]	[redacted]	[redacted]
In Service Date	October 2011	April 2012	December 2011	June 2012
MWE	103	103	129 [5]	136 [5]

1 2 3 4 5 6

Notes

All Outage durations to be reviewed & approved by CNO upon completion of scope definition

[1] Outage durations driven by Generator rewind currently in the approved Outage schedule

[2] Outage duration driven by Alloy 600 cold leg nozzle repair

[3] Outage duration driven by HP & LP Turbine and MSR Replacements

[4] Target goal for Six Sigma Team rewind outage durations

ICDR 1.6b-3 EPU [5] MWe based on Siemens heat balance (contract target) – designs not final

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Longer duration Outages have been included in the business model

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Plans and Targets

Turkey Point

	PROFORMA		FORECAST	
	U-3	U-4	U-3	U-4
LAR Submittal	9/01/09	9/01/09	6/30/10 [5]	6/30/10 [5]
1st Outage Duration	[redacted]	[redacted]	[redacted]	[redacted]
2nd Outage Duration	[redacted]	[redacted]	[redacted]	[redacted]
In Service Date	April 2012	October 2012	May 2012	December 2012
MWE	104	104	118 [4]	118 [4]

1
2
3
4
5

Notes

All Outage durations to be reviewed & approved by CNO upon completion of Scope definition

[1] Outage durations driven by Generator rewind currently in the approved Outage schedule

[2] Outage duration driven by HP Turbine and MSR replacements

[3] Target goal for Six Sigma Team rewind outage durations

[4] MWe based on Siemens heat balance (contract target) – designs not final

[5] AST LAR must be approved prior to submittal of EPU LAR

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Longer duration Outages have been included in the business model

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EPU LAR – PSL

Technical Challenges

- **MSSV Lifting during Normal Plant Trips**
  - -- Options for Unit 1 include increased Steam Bypass to Condenser (SBCS) capacity and valve speed
  - -- Unit 2 challenging due to low operating margin
    - – Tcold reduction not recommended due to adverse impact on generation
    - – Increased Steam bypass to condenser capacity and valve speed, add relief valves downstream of MSIVs, and add turbine trip time delay

- **Unit 1 and 2 CCW Piping**
  - -- Selected portions of piping exceed stress analysis temperatures at EPU conditions, analyses underway to minimize impact

- **Unit 1 PRA Evaluation**
  - -- Issue involves current PORV sizing and ability to accommodate once-through cooling
  - -- Alternate options under evaluation

- **Unit 1 LBLOCA – maximum Containment Spray flow**

ICDR 1.6b-3 5 AREVA working LBLOCA runs – challenging schedule to complete 89

EPU LAR – PTN

- **Containment Analysis**
  - Acceptable containment peak pressure/temperature results
  - Current Component Cooling Water System temperature limits will be exceeded
    - -- Evaluating Modification Options
    - -- Evaluating Hot Leg Injection flow path for long term cooling and preclude boric acid precipitation

- **Steam Line Break Core Analysis**
  - Initial results did not meet acceptance criteria
  - Acceptable results achieved by adding lead/lag module to SAIS low steam pressure input
  - Also reduces limiting peak containment pressure for SLB

- **DNB Parameters (OTΔT, OPΔT Trips)**
  - Initial PZR. Pressure margin to trip too close to normal operating pressure considering instrument uncertainties
  - Replacing PZR. Pressure gauges with digital to gain operating margin

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Bechtel Integration

EPC Estimates

- **Estimates have increased over the indicative bids**
  - FNM and Manual Labor hours higher
    - -- FPL validating process and accuracy
  - Home Office and JW support costs appear to be redundant
    - -- Will minimize/eliminate Bechtel JW
  - Larger scope than in indicative bids (both new scope and trends)

Challenge Items	Plan for Resolution
– Sharing resources between sites	5/27/09
– Work scope	5/29/09
– Assumptions used – work hours, overheads, etc.	6/05/09
– Outage duration assumptions	6/26/09
– Optimize manpower by eliminating Outage overlap	6/26/09

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Bechtel Integration

Bechtel EPC Estimates

- **Estimates are based on preliminary design**
  - More detail in scope as modification process proceeds
  - Some undefined scope is now identified
  - Some items as a result of on-going LAR & Engineering Analyses

- **In the process of refining estimates (i.e. from Shaw preliminary scoping estimates to level 1 estimates)**

- **The improved estimate process includes developing Best Case, Worst Case and P-50 view points**
  - Target date for completion 6/30/09

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Bechtel Integration

Bechtel EPC Estimates

- **Bechtel and Sites performing Best Case, Worst Case and P/50 Project cost reviews**

  - P/50 – is the most likely case with a 50/50 probability of executing the project plan and scope. This results in the most probable (50/50) project costs and schedule

  - Best Case – Results in the lowest total project cost, if the implementation went better than planned (scope simplified, beat schedule, no emergent items, no rework, no quality issues)

  - Worst case – results in the highest total project cost, if implementation went worse than planned (scope increases, schedule slips, emergent items, rework, quality issue). Assign cost and probability of occurrence to specific high risk mods.

Bechtel Integration

Example Criteria

	P-50	Best	Worst
Management	Mgmt Service Staff 10/site	Mgmt Service Staff 8/site	Mgmt Service Staff 25/site
	20% turnover in personnel	10% turnover in personnel	50% turnover in personnel
	work hours 5-8's with occasional OT	work hours 5-8's with occasional OT	work hours 6-10's
	JW staff at 9 people	JW staff at 3 people	JW staff at 9 people
	ODC and OHO limits	ODC and OHO limits	ODC and OHO limits
Construction	Project work 6-10's, 2 shifts during Outage, no double time	Project work 6-10's, 2 shifts during Outage, no double time	CP on 7-12's, Double time OT on 7th day. Assign cost and probability of occurrence to specific CP and near CP high risk mods
	FNM at full staff 30 days prior to Outage	FNM at full staff 2 weeks prior to Outage	FNM at full staff 4 weeks prior to Outage
	Craft at full staff 1 week prior to Outage	Craft at full staff 1 week prior to Outage	Craft at full staff 1 week prior to Outage
	Foreman/GF ratio - identify for each project	Foreman/GF ratio - identify for each project	Foreman/GF ratio - identify for each project
	Outage Schedule per plan	Outage Schedule - 10% Improvement per station plan, per Outage (and corresponding Job hour saving)	Outage Schedule - 20% push to Outage per station plan, per Outage
	Most station milestones are met	Most station milestones are met	Most station milestones are met
	Training / In processing - 5 days (40 hrs)	Training / In processing - 3 days (24 hrs)	Training / In processing - 5 days (40 hrs)
Engineering	Project Scope is the work list as approved by FPL in April	Define savings in resources (e.g., can the Elec Lead do Elec and I&C)	Using T-12 approach resulting in huge ramp-up of engineering staff to perform work
	Optimize Frederick/HO scope split	Levelized and optimized T-9 with some mods moved to other Outages. Some milestones to T-6	Risk items occur - define most probable
	Most milestones met (9Mo criteria)	Most Engineering in H.O. as appropriate	All Engineering at site
			All milestones met (12 mo criteria)
Materials and Subs	Award all 3 sites to same subcontractor	Just in time material deliveries save warehouse costs and multiple handling	3 separate subcontracts and 3 sites
	Bulk buys as much as possible	Minimal stock material remaining	Welders - use "golden arm" subcontractors PLUS 10% weld repair rework
	Bechtel/FPL optimize purchasing effort	Ensure BOM is not factored by Engineering and again by Field Engr.	More Subcontractors and less Direct Perform Craft
ICDR 1.6b-3 B	Welders - use "golden arm" subcontractors for critical welds	Use welders from "hall" for all welding (no contract welders)	001174 Significant Stand-alone purchases
			Risk items occur - define probable ris

Bechtel Integration

Project Overlap

- **EPC Scope overlaps FPL in some areas**
- **Reviewing the following functional areas to eliminate overlap**
  - Project Management
  - Project Support
  - Project Engineering
- **Will have better view when June 30th Bechtel data is available**

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Heat Balance

Potential MWe Gain

- Preliminary design heat balance indicate more MWe likely
- Will be performing additional testing to maximize MWe output
- Final design numbers will not be available until after testing and secondary pump and heater options are finalized (see page 21)

St. Lucie:

Unit	Needs Filling	Siemens Contract (MWe)	Winter Planning Max (MWe)	Summer Planning Min (MWe)
Unit 1	103	[redacted]	137	102
Unit 2	103		151	123

[redacted] 1

A

Turkey Point:

Unit	Needs Filling	Siemens Contract (MWe)	Winter Planning Max (MWe)	Summer Planning Min (MWe)
Unit 3	104	[redacted]	111	121
Unit 4	104		111	121

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Regulatory – Cost Recovery

Nuclear Cost Recovery

FPSC Internal Controls Audit begins	1/22/09 (a)
2008 True-up and testimony filing	3/2/09 (a)
Discovery begins	3/3/09 (a)
2009-10 Projections and Testimony filed	5/1/09 (a)
Intervener Testimony	7/14/09 (e)
Staff Testimony	7/28/09 (e)
Rebuttal Testimony	8/21/09 (e)
Discovery Completed	8/28/09
Hearings	8/31/09, 9/2/09-9/4/09
Staff Recommendations	10/02/09 (e)
Issue Order	11/2/09 (e)

- Over 200 Interrogatories and Data Requests responded to on time
- Testimony - complete
- FPSC audit of Project Controls - complete

Notes:

(e)=Estimated date.

ICDR 1.6b-3 EPU

Focus – SSJ's, Competitive bidding, "Separate and Apart"

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Scope Validation

Evaluating Project Margins and Scope

- **Initiated a validation of identified modification margins**
  - Condensate / Feedwater Pumps
  - Feedwater Heater Scope
  - Exciters
- **Evaluating Margins & LAR inputs**
  - Safety Analysis
  - Trip Transient
  - Design and Operating Margins
- **Technical Challenge Board to review results and plan going forward**

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PTN ISFSI

Confirmation/ Approval for ISFSI Location

- **Recommendation is for EPU Craft facility inside PA and relocate ISFSI Pad outside PA**
  - Revisiting Facility needs
- **FDEP Approved Amendment Request to the Site Certification for ISFSI Location outside PA. Agencies and third parties have about 30 days to appeal.**
- **Plan to Resolve Zoning Issue for ISFSI Location is in Process**
  - Plan is to confirm zoning approval through County Building Department permitting process
  - Requirement and related process for revision of the Conceptual Site plan is still under discussion with the County
  - Uncertainly exists on ISFSI zoning approval for location outside PA. Any construction of EPU facility on initial ISFSI location should await better understanding of zoning status
- **Based on time needed for Engineering and Construction, need to start EPU Craft Facility by July 1 and ISFSI construction is August 3, 2009**

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Project Risks – PSL

	Origin Date	Risk Event Description	H/M/L	Impact level	Type	Maximum Cost Exposure ($000's)	Type of Estimate	Prob Level	Weighted Risk Exposure ($000)	Impact Description	Mitigation Action
1	9/8/08	Implementation and Schedule execution may cost more than Proforma	[redacted]	Significant	Cost	[redacted]	[redacted]	[redacted]	[redacted]	Contingency will be needed to expended for any shortfalls not predicted by Proforma Note: Bechtel indicates Engineering costs will be higher than proposal	Working with Bechtel. Developed action plan to determine the accurate number of Bechtel staff needed (final action 5/15)
2	4/3/09	Elimination of MSSVs lifting on a Plant Trip will require a significant modification to the Steam Dump system - or - reduction of T-cold		Significant	Design					U-1 Significant cost to modify the steam dump system or a reduction in MWe if Tcold is lowered	U-1: Plan to increase capacity of Steam dump and Bypass System. Reviewed and accepted by Plant Health Committee U-2: Perform K-T analysis and provide recommendations to Senior Management ready for internal challenge with Chief (due 5/8)
3	4/30/09	U-1 PRA for Total Loss of Feedwater indicates PORVs are undersized for uprate condition		Significant	Schedule Cost					Cost and schedule could be impacted if PORVs need to be replaced	Working on alternative Solutions Will likely require mods other than PORV replacement Risk Mitigation Plan in development
4	1/23/09	Available Containment Pressure Margin reduced due to the discovery of Legacy LOCA analysis error	M	Significant	Design					Impact is not yet fully analyzed. Current available margin has been reduced from 7 PSI to 4 PSI	Preliminary reanalysis for U-2 is acceptable U-1 will require a mini-purge system Plant Health Committee has reviewed Will process scope change
5	12/18/08	Preliminary evaluations indicate that the current design flow for U1 hot leg injection may be less than adequate to support the uprated condition without a modification	M	Marginal	Schedule/ Cost					May require an additional modification. The scope/cost of mod is not yet determined	Will require system modification processing Scope Change
6	5/28/08	WEC & SHAW vendor staffing level may not be sufficient to support project	M	Significant	Schedule					Could cause delays with LAR schedule and/or cost additional monies	Agreement on re-baselining reached; no impact to end date for Shaw and WEC
7	7/30/08	Rewind at PB and PSL overlap	M	Significant	Schedule					Specialty Technicians and equipment are required at the same time at PB and PSL. Could delay rewind at PSL and affect PSL Critical	Siemens requires 31 days from start of PBNP outage and the start of PSL outage; currently 36 days exist in the schedule (Difference of 5 days) See Mitigation Plan for details
8	Prior to 2/1/09	License Amendment Request NRC Review could be delayed due to errors and omissions - NRC Acceptance - NRC Technical Review - ACRS Review - SBLOCA Confirmatory Analysis	M	Critical	Regulatory/ Schedule					Depending on the extent of the delay, could result in additional cost and extension of the project length	1. Prepare LAR consistent with RS-001, NRR Review Standard for Extended Power Uprates. • Develop EPPI for format and level of detail 2. Use Ginna EPU submittal as a guide for format and level of detail 3. Sequester reviews and challenge boards at certain interim LAR milestones • Self Assessment after 1st LAR Section 4. Multi-party peer reviews using industry and regulatory experts 5. Advance meetings with NRC prior to submittal 6. VP Nuclear Power Uprate met with NRR management 7/21/08 7. Monthly meetings with NRR 8. CNO met with NRC EDO on 3/23/09 to discuss review schedules 9. FPL to establish a presence in Washington to coordinate questions and RAIs

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Project Risks – PSL

	Origin Date	Risk Event Description	H/M/L	Impact Level	Type	Maximum Cost Exposure ($000)	Type of Estimate	Prob Level	Weighted Risk Exposure ($000)	Impact Description	Mitigation Action
9	1/8/09	New NRC mandated Maintenance rule working hours will further limit allowed working hours	M	Marginal	Cost	[redacted]				Potentially extend outage Durations and/or increase costs	EPU management working with Licensing to ensure an acceptable procedure which will minimize the impact to EPU
10	10/14/08	There is potential that Legacy Analysis or License basis issues may be uncovered during re-analysis for EPU LAR	M	Significant	Programmatic					Two such items have already been identified: PB FW temp and PTN CTMT analysis which are being tracked by a separate line item. The impact is difficult to quantify until discovery	Developed and issued EPPI-345; new instruction that defines risk identification and mitigation utilizing WM-AA-1000. Thus far, the process has been effective
11	8/12/08	Given the planned construction of new nuclear plants in FL, obtaining adequate skilled labor to support EPU at PTN and PSL may be problematic (Note: This was the same #1 risk identified by each of the perspective EPC vendors)	M	Significant	Schedule/ Cost					A lack of adequate skill craft could impact the outage schedules and related costs	Will continue to monitor Have instituted a 60 day rehire policy for these individual contractors that leave the site/project voluntarily Instituted monthly meetings with SAs
12	6/3/2008	Transition to Nuclear Asset Management Systems (NAMS)	M	Marginal	Programmatic					May cause delays with review and approval of Engineering Documents	Per Fleet wide Change Management Plan Hold meeting with NAMS coordinator and Site PMs Transition to NAMs currently scheduled for Dec 09
13	2/13/08	Vendor Staffing Level may not be sufficient to support the Project	M	Significant	Project Mgmt.					Schedule and Outage Milestones could be impacted	Continue to monitor actual staffing levels against established staff ramp up Plan Conducting quarterly meeting with Major Vendor and CNO starting in April

1 2 3 4

Weighted High Risk items total ~ [redacted]

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Project Risks – PTN

	Origin Date	Risk Event Description	H/M/L	Impact Level	Type	Maximum Cost Exposure ($000)	Type of Estimate	Prob Level	Weighted Risk Exposure ($000)	Impact Description	Mitigation Action
1	8/1/08	Implementation and Schedule execution may cost more than Proforma		Significant	Cost	[redacted]				Contingency will be needed to expended for any shortfalls not predicted by Proforma Note: Bechtel indicates Engineering costs will be higher than proposal	Assessing scope and staff estimates See Mitigation Plan for Details
2	4/23/09	Turbine Gantry Crane travel speed, available laydown space, etc. Crane may be Less than Adequate to efficently support the EPU outages		Critical	Schedule					Inability to efficently remove and replace equipment needed for power uprate within the proposed Outage time frame	Obtain qualified CEM to evaluate the overall condition of the Crane and provide recommendations Review recommendations and implement repairs as necessary to improve crane reliability and condition See Risk Mitigation Plan for details
3	10/10/08	Error discovered in the Containment Integrity Design Basis Analysis		Critical	Programmatic					The Error (non conservative) may significantly reduce the Containment Pressure Margin needed for the Extended Power Uprate conditions	Favorable results with heat sink model. Further CCW mods may be necessary. Performing KT Analysis to determine scope and significance of modification to be determined by 5/31/09 See Risk Mitigation Plans for Details
4	Prior to 2/1/05	Project Staff Level not sufficient		Significant	Project Mgmt.					Project not able to establish and maintain an adequate level of in-house and augmented staff personnel. Staffing level not sufficient to manage project efficiently.	Raised to High due to recent resignations of Key Engineering Management See Mitigation Plan for details
5	2/4/09	Site Capacity: Given the total quantity of work planned (including work from other projects), the overall work imposed on the station for such items as PORC reviews, procedures, training, WO Reviews, etc. may be beyond the capacity for the station to support	M	Significant	Cost/ Schedule					Potential to extend the Outage and/or slip a cycle for the in-service date	Being reviewed per Bechtel levelization and Outage Scope Plan
6	8/2/2008	NRR Instruction (LIC-109) requires the AST LAR to be submitted and approved prior to submitting the EPU LAR	M	Critical	Regulatory					Assuming it takes 12 months for approval of the AST and 14 Months for EPU LAR, there is only 4 months float in the LAR schedules. If the EPU LAR is not received by December 2010, then would be unable to perform new Fuel Receipt (SFP Criticality)	Apply necessary project focus to ensure the AST LAR is submitted no Later than June 09 Pre-application Meeting with NRC held on 4/24/09 LAR to be submitted for Station Review by 5/12; All reviewers personally notified
7	10/14/08	There is potential that Legacy Analysis or License basis issues may be uncovered during re-analysis for EPU LAR	M	Significant	Programmatic					Three such items have already been identified: PB FW temp, PTN CTMT analysis and PTN ECF case The impact is difficult to quantify until discovery	EPPI-145 new instruction that defines risk identification and mitigation utilizing WM-AA-1000.
8	ICDR 1.6 1/8/09	New NRC mandated Maintenance rule working hours will further limit allowed working hours	M	Marginal	Cost					Potentially extend outage Durations and/or increase costs	EPU management working with Scheduling to ensure an acceptable procedure which will minimize the impact to EPU

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Project Risks – PTN

	Origin Date	Risk Event Description	H/M/L	Impact level	Class	Maximum Cost Exposure ($000)	Type of Estimate	Prob Level	Weighted Risk Exposure ($000)	Impact Description	Mitigation Action
9	5/29/08	WEC and SHAW vendor staffing level may not be sufficient to support project	M	Significant	Schedule	[redacted]				Could cause delays with LAR schedule and/or cost additional monies	Westinghouse provided Recovery Plan Mitigation actions being implemented Will continue to monitor the effectiveness of actions Agreement on re-baselining reached; no impact to end date for Shaw and WEC
10	4/23/08	FPL PRA support is not adequate to complete all activities within the schedule.	M	Marginal	Schedule					There are a large number of activities which need to be performed as well as PSL and PTN PRA activities are being performed concurrently with all tasks being scheduled in series. PRA group has limited resources to accomplish this and several tasks have no resources assigned at all.	Determine if any activities can be accomplished in parallel Supplement staff through EPU if necessary
11	6/3/2008	Transition to Nuclear Asset Management Systems (NAMS)	M	Marginal	Programmatic					May cause delays with review and approval of work planning.	Per Fleet wide Change Management Plan Hold meeting with NAMS coordinator and Site PMs
12	2/12/08	License Amendment Request NRC Review could be delayed due to errors and omissions - NRC Acceptance - NRC Technical Review - ACRS Review - SBLOCA Confirmatory Analysis	M	Critical	Regulatory/ Schedule					Depending on the extent of the delay, could result in additional cost and extension of the project length Engineering Resources are needed to support LAR	1. Prepare LAR consistent with RS-001, NRR Review Standard for Extended Power Uprates. • Develop EPPI for format and level of detail 2. Use Ginna EPU submittal as a guide for format and level of detail 3. Sequester reviews and challenge boards at certain interim LAR milestones • Self Assessment after 1st LAR Section 4. Multi-party peer reviews using industry and regulatory experts 5. Advance meetings with NRC prior to submittal 6. VP Nuclear Power Uprate met with NRR management 7/21/08 7. Monthly meetings with NRR 8. CNO met with EDO on 3/23 to discuss schedule 9. Plan to establish a presence in Washington to coordinate NRC questions and responses to RAIs Current schedule adequate to meet current needs
13	4/8/08	Based on the amount of work planned, the work may not be sufficiently integrated to prevent interference with implementation	M	Marginal	Schedule					Potential to extend the Outage duration	Schedule Fragnets to be reviewed by Bechtel and Project team after Scope, Outage Durations and Crane condition are better defined
14	5/21/08	Control Room ventilation intake Modifications are likely based on the analysis for the AST LAR	M	Marginal	Schedule/ Cost					New Scope identified for AST LAR; could impact Project Scope and Cost	Define scope, issue SCTN and include as project scope

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Weighted High Risk items total ~ [redacted]

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Performance Indicators

Performance Indicators - PSL

Cost				
RP-2	RP-1	CRp		Page
G	G	G	1 Cost Status	6
G	G	G	2 Budget / Variance Status	
UD	UD	UD	3 Estimate Status	
G	G	G	4 Invoice Issues	

Schedule U1R23 - Spring 2010				
RP-2	RP-1	CRp		Page
			1 Station Outage Milestone Status	10
			2 Project Pre-Outage Critical Path U1R23	
	Y		3 LAR Milestone Status	
	Y		4 LAR Critical path	
G	G	G	5 Major Deliverables Histogram	

Eng. Deliverables U1R23 - Spring 2010				
RP-2	RP-1	CRp		Page
			1 PCM Status	26
			2 PCM Burndown Chart	
UD	UD		3 Engineering Walkdowns	
UD	UD	UD	4 Drawing Status	
UD	UD	UD	5 Vendor Manual Status	

Project Management U1R23 - Spring 2010				
RP-2	RP-1	CRp		Page
Y	Y	Y	1 Performance (EV) Status	39
UD	UD	UD	2 Task Plans	
G	G	G	3 Overtime Tracking	

Engineered Material U1R23 - Spring 2010				
RP-2	RP-1	CRp		Page
G	G	G	1 Bid Spec / RFP Cmplt	45
G	G	G	2 Award PO Cmplt	
Y	Y		3 Fabrication / Deliver	

Installation Planning U1R23 - Spring 2010				
			1 Work Order Planning	64
			2 Site Preps	
			3 Work Order Complete Burndown Chart	
UD	UD	UD	4 Manpower Planning	
UD	UD	UD	5 Constructability Walkdowns	

UD	Metric to be Available 05-15-09

Schedule U1R23 - Spring 2010			
RP-2	RP-1	CRp	
			1 Station Outage Milestone Status
			2 Project Pre-Outage Critical Path
	Y		3 LAR Milestone Status
	Y		4 LAR Critical path
G	G	G	5 Major Deliverables Histogram

Schedule U2R19 - Fall 2010			
RP-2	RP-1	CRp	
W	W		1 Station Outage Milestone Status
			2 Project Pre-Outage Critical Path
	Y	Y	3 LAR Milestone Status
	Y		4 LAR Critical path
G	G	G	5 Major Deliverables Histogram

Eng. Deliverables U1R23 - Spring 2010			
RP-2	RP-1	CRp	
			1 PCM Status
			2 PCM Burndown Chart
UD	UD		3 Engineering Walkdowns
UD	UD	UD	4 Drawing Status
UD	UD	UD	5 Vendor Manual Status

Eng. Deliverables U2R19 - Fall 2010			
RP-2	RP-1	CRp	
			1 PCM Status
			2 PCM Burndown Chart
UD	UD	UD	3 Engineering Walkdowns
UD	UD	UD	4 Drawing Status
UD	UD	UD	5 Vendor Manual Status

Project Management U1R23 - Spring 2010			
RP-2	RP-1	CRp	
Y	Y	Y	1 Performance (EV) Status
UD	UD	UD	2 Task Plans
G	G	G	3 Overtime Tracking

Project Management U2R19 - Fall 2010			
RP-2	RP-1	CRp	
UD	UD	UD	1 Performance (EV) Status
UD	UD	UD	2 Task Plans

Engineered Material U1R23 - Spring 2010			
RP-2	RP-1	CRp	
G	G	G	1 Bid Spec / RFP Cmplt
G	G	G	2 Award PO Cmplt
Y	Y		3 Fabrication / Deliver

Engineered Material Material U2R19 - Fall 2010			
RP-2	RP-1	CRp	
G	G	G	1 Bid Spec / RFP Cmplt
Y	Y	G	2 Award PO
Y	Y	Y	3 Fabrication / Deliver

Installation Planning U1R23 - Spring 2010			
			1 Work Order Planning
			2 Site Preps
			3 Work Order Complete Burndown Chart
UD	UD	UD	4 Manpower Planning
UD	UD	UD	5 Constructability Walkdowns

Installation Planning U2R19 - Fall 2010			
W	W		1 Work Order Planning
W	W	W	2 Site Preps
G	G	G	3 Work Order Complete Burndown Chart
UD	UD	UD	4 Manpower Planning
UD	UD	UD	5 Constructability Walkdowns

Legend	
Green	Total Float is (+) & Baseline Variance is (+)
White	Total Float is (+) & Baseline Variance is (-). BL Date is > Data Date
Yellow	Total Float is (+) & Baseline Variance is (-). BL Date is < Data Date
Red	Total Float is (-) & Baseline Variance is (-). BL Date is < Data Date

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Performance Indicators

Performance Indicators - PTN

Cost					
	RP-2	RP-1	CRp		Page
	W			1 Cost Status	7
	G	G	G	2 Budget / Variance Status	
	UD	UD	UD	3 Estimate Status	
	Y			4 Invoice Issues	

Schedule U3R25 - Fall 2010					
	RP-2	RP-1	CRp		Page
				1 Station Outage Milestone Status	12
				2 Project Pre-Outage Critical Path	
		Y	Y	3 LAR Milestone Status	
		G		4 LAR Critical path	
	Y	Y	Y	5 Major Deliverables Histogram	

Eng. Deliverables U3R25 - Fall 2010					
	RP-2	RP-1	CRp		Page
				1 PCM Status	24
				2 PCM Burndown Chart	
	UD	UD	G	3 Engineering Walkdowns	
	UD	UD	UD	4 Drawing Status	
	UD	UD	UD	5 Vendor Manual Status	

Project Management U3R25 - Fall 2010					
	RP-2	RP-1	CRp		Page
	Y	Y	Y	1 Performance (EV) Status	43
	UD	UD	UD	2 Task Plans	
	G	G	G	3 Overtime Tracking	

Engineered Material U3R25 - Fall 2010					
	RP-2	RP-1	CRp		Page
				1 Bid Spec / RFP	49
				2 Award PO	
	Y	Y	Y	3 Fabrication / Deliver	

Installation Planning U3R25 - Fall 2010					
	RP-2	RP-1	CRp		Page
	W	W	W	1 Work Order Planning	74
	W	W	W	2 Site Preps	
	G	G	G	3 Work Order Complete Burndown Chart	
	UD	UD	UD	4 Manpower Planning	
	UD	UD	UD	5 Constructability Walkdowns	

Schedule U3R25 - Fall 2010				
RP-2	RP-1	CRp		
			1 Station Outage Milestone Status	
			2 Project Pre-Outage Critical Path	
	Y	Y	3 LAR Milestone Status	
	G		4 LAR Critical path	
Y	Y	Y	5 Major Deliverables Histogram	

Schedule U4R26 - Spring 2011			
RP-2	RP-1	CRp	
G	G	G	1 Station Outage Milestone Status
			2 Project Pre-Outage Critical Path
			3 LAR Milestone Status
			4 LAR Critical path
Y	Y	Y	5 Major Deliverables Histogram

Eng. Deliverables U3R25 - Fall 2010			
RP-2	RP-1	CRp	
			1 PCM Status
			2 PCM Burndown Chart
UD	UD	G	3 Engineering Walkdowns
UD	UD	UD	4 Drawing Status
UD	UD	UD	5 Vendor Manual Status

Eng. Deliverables U4R26 - Spring 2011			
RP-2	RP-1	CRp	
W	W	W	1 PCM Status
G	G	G	2 PCM Burndown Chart
UD	UD	UD	3 Engineering Walkdowns
UD	UD	UD	4 Drawing Status
UD	UD	UD	5 Vendor Manual Status

Project Management U3R25 - Fall 2010			
RP-2	RP-1	CRp	
Y	Y	Y	1 Performance (EV) Status
UD	UD	UD	2 Task Plans
G	G	G	3 Overtime Tracking

Project ManagementU4R26 - Spring 2011			
RP-2	RP-1	CRp	
			1 Performance (EV) Status
UD	UD	UD	2 Task Plans
			3 Overtime Tracking

Engineered Material U3R25 - Fall 2010			
RP-2	RP-1	CRp	
			1 Bid Spec / RFP
			2 Award PO
Y	Y	Y	3 Fabrication / Deliver

Engineered Material U4R26 - Spring 2011			
RP-2	RP-1	CRp	
G	G	G	1 Bid Spec / RFP
G	G	G	2 Award PO
Y	Y	Y	3 Fabrication / Deliver

Installation Planning U3R25 - Fall 2010			
RP-2	RP-1	CRp	
W	W	W	1 Work Order Planning
W	W	W	2 Site Preps
G	G	G	3 Work Order Complete Burndown Chart
UD	UD	UD	4 Manpower Planning
UD	UD	UD	5 Constructability Walkdowns

Installation Planning U4R26 - Spring 2011			
RP-2	RP-1	CRp	
W	W	W	1 Work Order Planning
W	W	W	2 Site Preps
G	G	G	3 Work Order Complete Burndown Chart
UD	UD	UD	4 Manpower Planning
UD	UD	UD	5 Constructability Walkdowns

UD	Metric to be Available 05-15-09

Legend	
Green	Total Float is (+) & Baseline Variance is (+)
White	Total Float is (+) & Baseline Variance is (-). BL Date is > Data Date
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Red	Total Float is (-) & Baseline Variance is (-). BL Date is < Data Date

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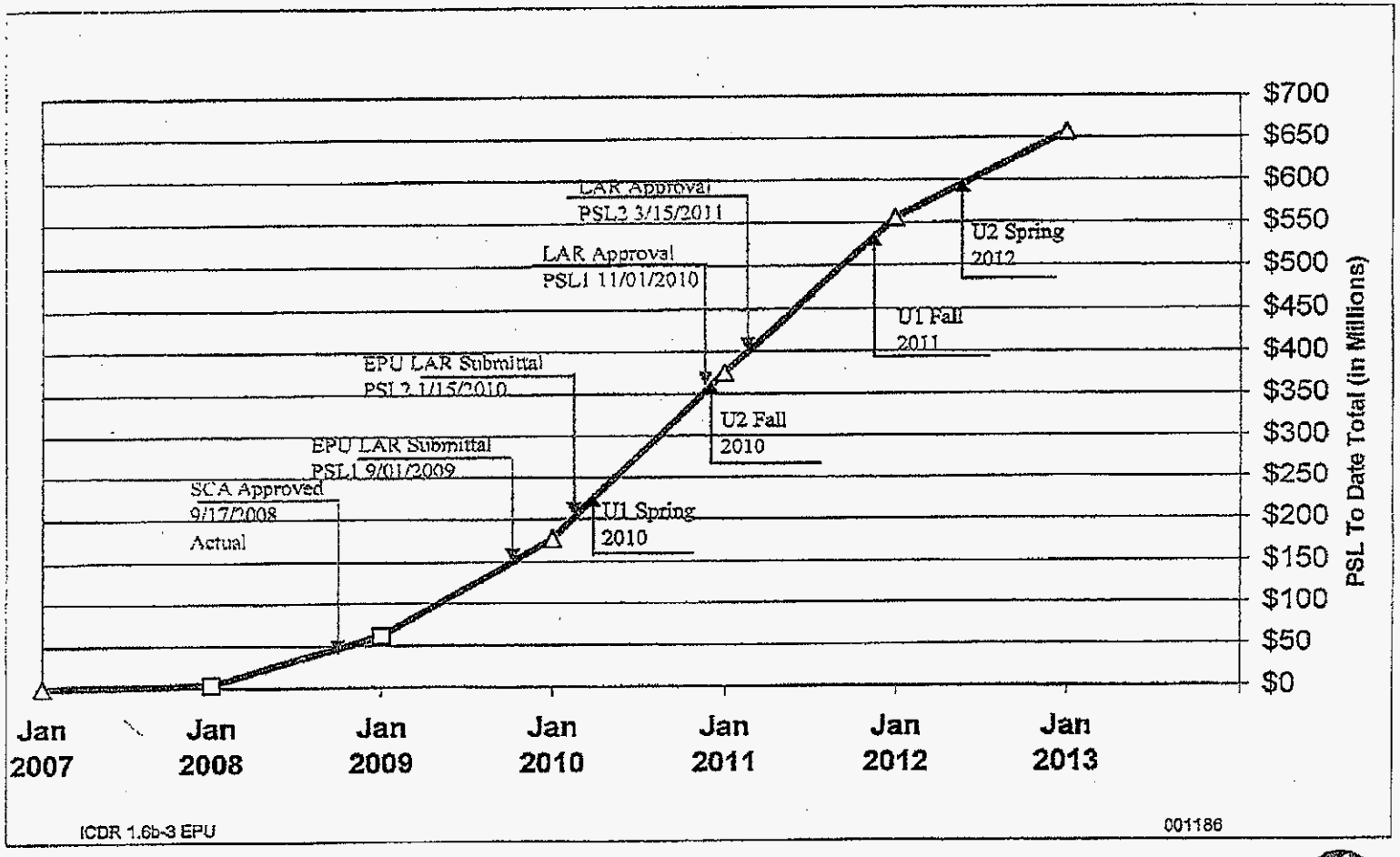
Supplemental

Saint Lucie Cash Flow



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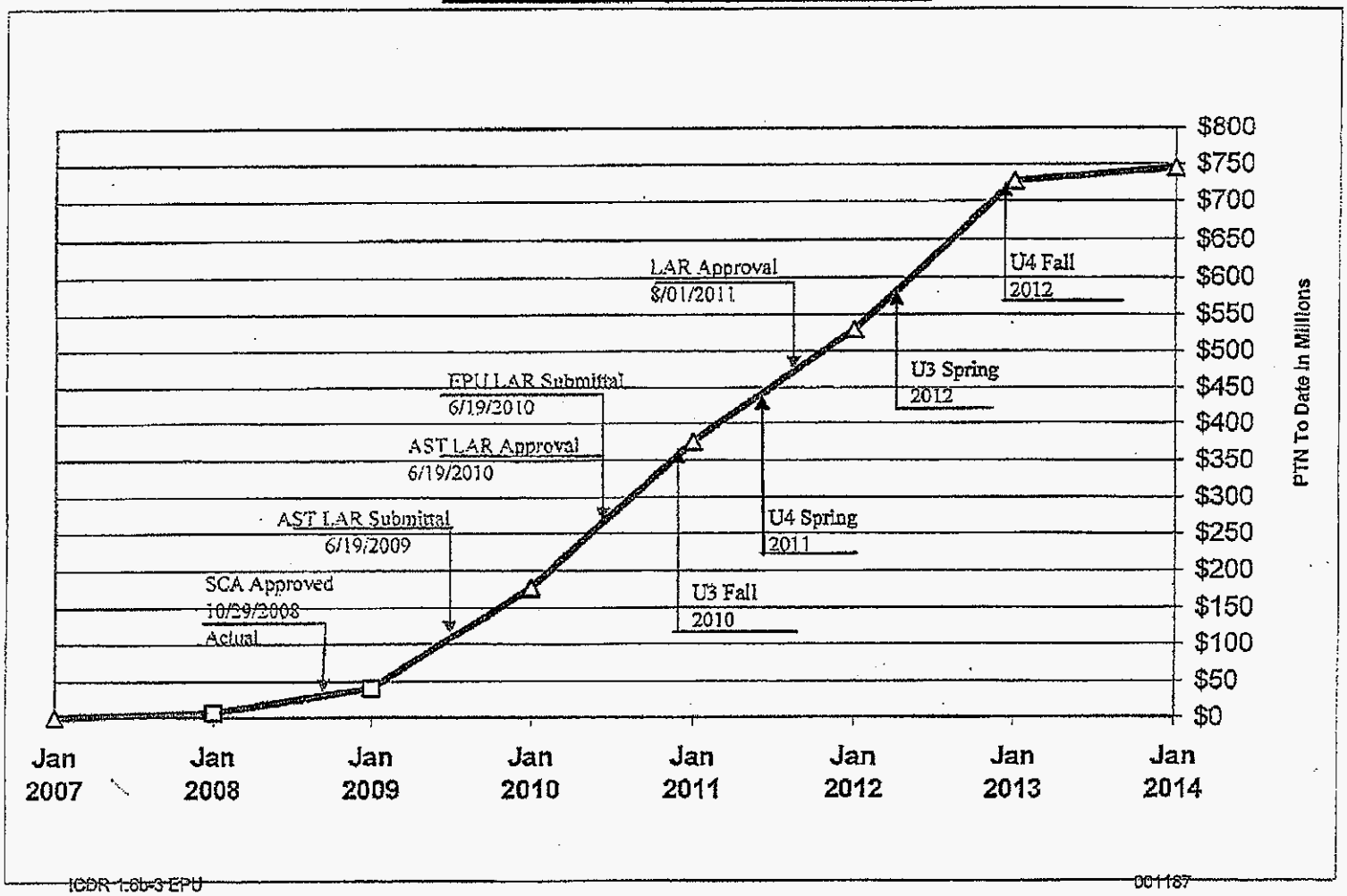
Supplemental

Turkey Point Cash Flow



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DRAFT

Extended Power Uprates
Project Update
Turkey Point

July 25, 2009

Agenda

- Overview
- Area Summary & Line by Line
- Implementation
- Risk and Mitigation
- NRC Schedule
- Lessons learned

I. Overview

Current Plans and Targets

	PROFORMA		FORECAST	
	U-3	U-4	U-3	U-4
LAR Submittal	9/01/09	9/01/09	6/30/10 [5]	6/30/10 [5]
1st Outage Duration	[redacted]	[redacted]	[redacted]	[redacted]
2nd Outage Duration				
In Service Date	April 2012	October 2012	May 2012	December 2012
MWE	104	104	118 [4]	118 [4]

1
2
3
4
5

Notes

All Outage durations to be reviewed & approved by CNO upon completion of Scope definition

[1] Outage durations driven by Generator rewind currently in the approved Outage schedule

[2] Outage duration driven by HP Turbine and MSR replacements

[3] Target goal for Six Sigma Team rewind outage durations

[4] MWe based on Siemens heat balance (contract target)

[5] AST LAR must be approved prior to submittal of EPU LAR

ICDR 1.6b-3 EPU Longer duration Outages have been included in the business model

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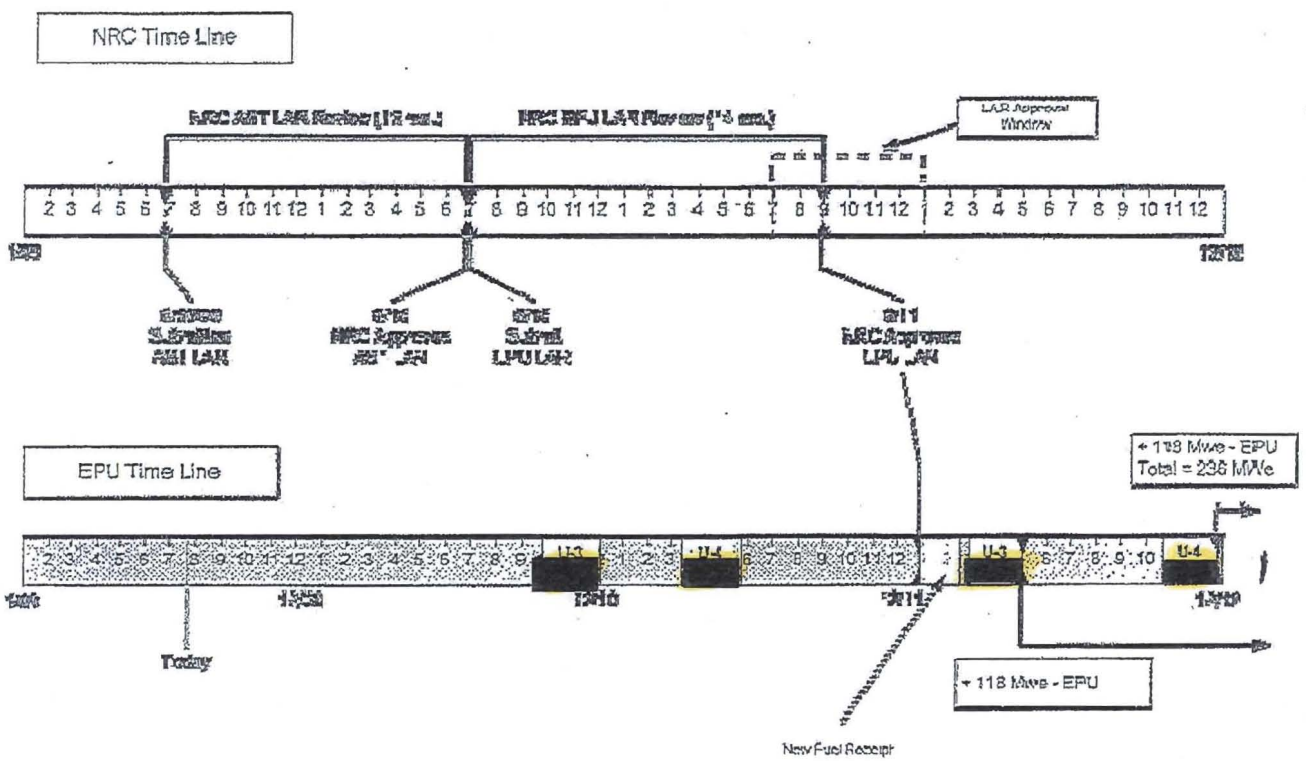
I. Overview

Turkey Point Timeline



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I. Overview

Cost Overview

	ORIGINAL ESTIMATE	CURRENT ESTIMATE	ESTIMATE DIFFERENCE	ACTUAL/ ACCRUALS	AMOUNT TO GO
LAR	$28,672,000	$62,648,935	-$33,976,935	$23,089,922	$39,559,013
ENGINEERING	$18,466,810	$67,812,028	-$49,345,218	$11,243,078	$56,568,950
MATERIALS	$201,036,700	$237,579,947	-$36,543,247	$33,681,165	$203,898,782
IMPLEMENTATION	$192,033,500	$438,589,705	-$246,556,205	$20,348,406	$418,241,299
SCOPE UNDEFINED	$245,889,870	$77,155,389	$168,734,481	$0	$77,155,389
ESCALATION	$63,082,230	$25,955,221	$37,127,009	$0	$25,955,221
TOTAL	$749,181,110	$909,741,225	-$160,560,115	$88,362,571	$821,378,654

440 205

55.9%

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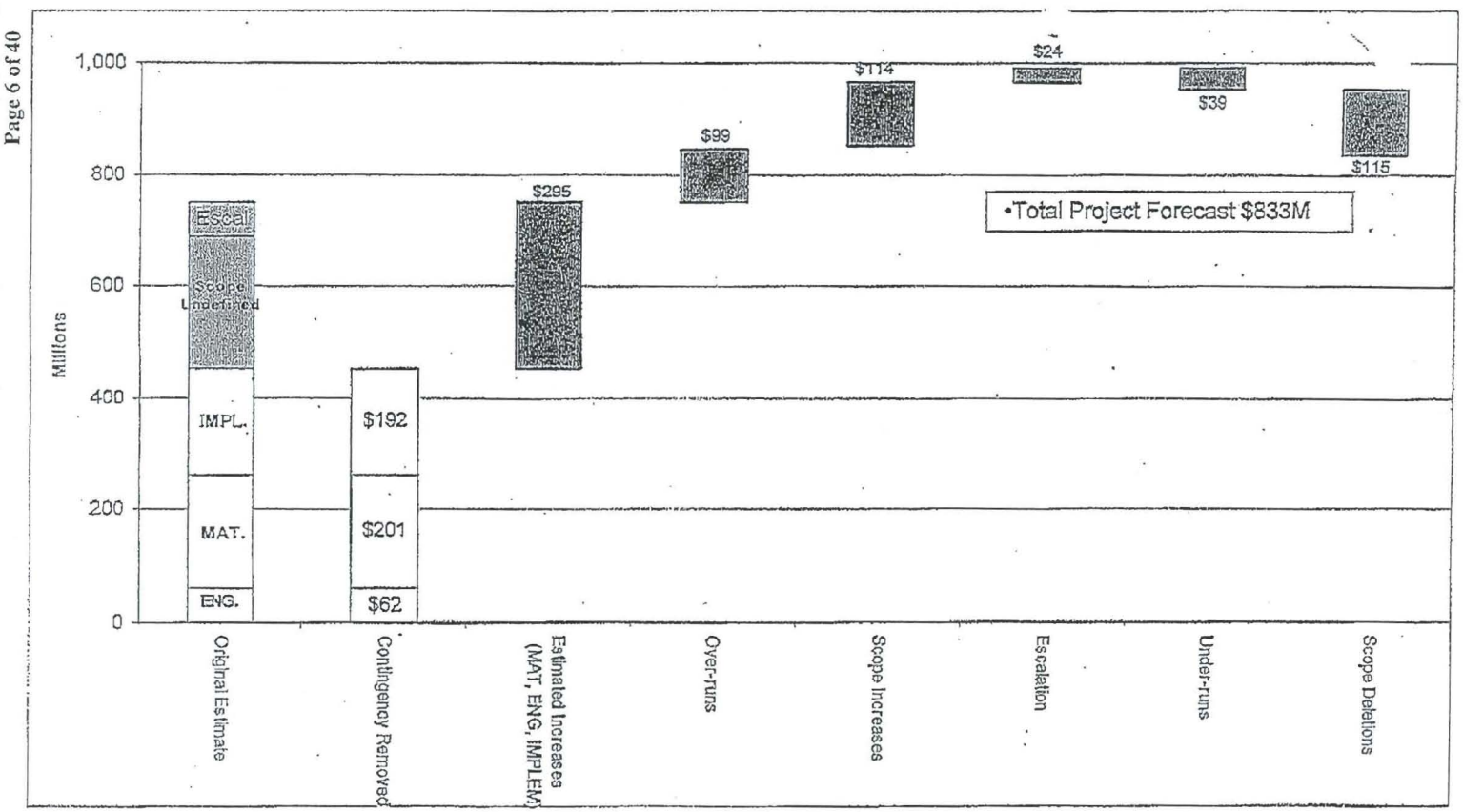
I. Overview

Forecast Overview Walk-Thru



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II. Area Summary and Line by Line

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II. Area Summary

Current Budget of $749M increased to $833M (Current Forecast*)

- **The causes for the increase were primarily due to the following:**
  - Initial Shaw feasibility estimates were based on conceptual scope
  - Scope Growth driven by – LAR and Design Evolution
  - Bechtel Field Non-manual (FNM) and Indirect costs for the EPC contract are higher than expected
  - Material costs significantly higher than Shaw original estimates

*excludes scope undefined

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II. Area Summary

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Licensing Cost

Licensing Engineering costs were higher than planned by $34mm due to:

- Base contract costs higher than anticipated
- EPU analysis significantly more extensive and intrusive than stretch power uprate like Seabrook
- New analysis methodologies required to achieve acceptable results
- NRC regulatory guidance issued expanding scope/ complexity of LAR
- Fast Track schedule caused work to be performed with draft inputs and re-worked later
- Core LAR staff owner's functions largely contracted

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II. Line by Line - LAR

Licensing Engineering costs were higher than planned

DESCRIPTION	ORIGINAL	CURRENT	VARIANCE	EXPLANATION / NOTES
NSSS Analysis and Engineering				
WEC NSSS and Fuel Analysis	$20,000,000	[redacted]	[redacted]	Base Scope
Areva Replacement Components Analysis				Base Scope
Contract Incentives				Base Scope
RAI Support				Base Scope
SFP Criticality Analysis				Base Scope
Decay Heat Analysis				Transferred from Shaw Base Scope
PRA Analysis				ACRS now requres showing EPU is risk beneficial
Reconstitute BMI Stress Analysis				No existing analysis of record
TRACE Inputs - NRC Confirmatory Analysis				New NRC req't to perform confirmatory LOCA analyses
EAF Scoping/Pressurizer Impact				Prior methodology for EAF no longer accepted by NRC
Unresolved WEC Scope Changes				Analysis areas requiring more work than originally estimated by WEC due to unacceptable results
Mid Process Scope Review Changes				#1 - 4 PWH, Cond Pumps, SGFPs
Additional Analyses				Analyses from review cycle, unacceptable results, LTC/BA precipitation
SUBTOTAL	$20,000,000	$33,603,830	-$13,603,830	

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continued on next page

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II. Line By Line – LAR

LAR Walk-thru

DESCRIPTION	ORIGINAL	CURRENT	VARIANCE	EXPLANATION / NOTES
BOP Analysis and Engineering				
Shaw BOP Analyses	$6,000,000	[redacted]	[redacted]	Base Scope
Contract Incentives				Base Scope
RAI Support				Base Scope
Shaw scope adjustments				Base Scope
MSIV/MSCV Disk Qualifications				Industry OE of failed disks
Mid Process Review				#1 - 4 FWH, Cond Pumps, SGFPs
Additional Analyses				Analyses from review cycle, unacceptable results
FPL LAR Engineering				
FPL MOD Engineering Support for LAR				
SUBTOTAL	$6,000,000	$18,050,705	-$12,050,705	
Grid Stability Risk Study	$250,000	[redacted]	[redacted]	
Other Contracts				
Third Party Reviews	$222,000	[redacted]	[redacted]	Owners Support and independent reviews
Environmentally Assisted Fatigue Reanalysis				Prior methodology for EAF no longer accepted by NRC
AST Dose Analysis				New dose analysis needed to support acceptable results at EPU conditions and address control room habitability conditions
Cameron Testing Services for MUR				Validates power uncertainty for determining RTP value for uprate
Integrated LAR Compilation				Compile LAR in E-form for submittal
Other RAI Support				
SUBTOTAL	$222,000	$7,226,563	-$7,004,563	
NRC Review Fees	$2,200,000	$3,385,864	-$1,185,864	AST, EPU and Confirmatory Analyses
SubTotal	$2,200,000	$3,385,864	-$1,185,864	
Total without Escalation and Contigency	$28,672,000	$62,648,935	-$33,976,935	

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II. Area Summary

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Engineering Costs

- **Modification Engineering costs increased by $49mm due to:**
  - Original Shaw Estimates conceptual vs. detail
  - Number of Modifications increased due to Scope Growth and LAR Analysis
  - Bechtel increases in Home Office and Overhead costs

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II. Line by Line - Engineering

This table represents the variance in Engineering costs between the original budget and the current forecast. The significant differences are shown.

SCOPE	ORIGINAL	FORECAST	VARIANCE	EXPLANATIONS / NOTES
OVERRUNS				
	ENG.	ENG.	ENG.	
Condenser Replacement/Amertap	$500,000	[redacted]	[redacted]	Amertap and cathodic protection system replacements vs. upgrades. Scope increase
Simulator	$50,000			Reactor core model vs. entire EPU parameter change model. Scope increase.
New Turbine Controls DEH/EHC	$500,000			Engineering underestimated
Replace FAC-Identified Piping	$100,000			Configuration verification and stress analysis required
Allowance for Additional Cooling Mods to TPCW/ICW	$200,000			Existing heat exchangers can not be modified for EPU conditions
Install Condensate Pumps - Replace Internals	$200,000			Rewound motors adequate, new pumps required with motor filter modifications. Scope increase
Modify The Isolated Phase Bus Duct Cooling System	$200,000			Coolers acceptable. IPBD not adequate for load. Scope increase.
Allowance for MSR replacement	$1,300,000			Install drain tanks and modify crossover piping. Scope increase.
Add New Fast closing FW Isolation Valves Outside Containment	$1,080,000			MOVs cannot meet design requirements AOVs must be used.
Main Steam Piping Support Mods And / Or New Supports	$300,000			Potential for more extensive modification with additions
Sub - Total	$4,430,000	$21,378,000	-$16,948,000	
OVERRUNS $1M				
Implement LEFM Check Plus MUR	$500,000	[redacted]	[redacted]	Based on detailed mod package estimates.
Steam Dump Valves/piping Modifications	$120,000			Actuators, positioners and new cabling from control room vs. local valve work only
Replace 2 HP FW Htrs - #5 (4 Sub - Total For 2 Units)	$300,000			Scope increase;larger heaters, stress analysis plus stranded costs
Replace 2 HP FW Htrs - #6 (4 Sub - Total For 2 Units)	$345,000			Scope increase;larger heaters, stress analysis plus stranded costs
Alternate SFP Cooling System	$200,000			Scope increase, increased analysis manhours and job complexity
Allowance For Replacement Of Gravity Drain Piping - #5 Heater	$200,000			Scope increase; longer pipe section replacement and stress analysis issues.
FW Regulating Valve (FRV) Trim Replacement	$200,000			Scope increase; actuator and solenoid replacements with additional stress analysis
BOP Instrumentation & Control Setpoint, Rescaling & Hardware Mo	$450,000			Larger BOP instrument & Control setpoint changes. Scope increase.
Replace The Main Transformers	$350,000			Engineering evaluation eliminated transformer replacement in lieu of cooler upgrade. Scope increase.
Increase Aux FW Pump Capacity & CST Volume	$100,000			Minor valve modifications in lieu of pump modifications. Scope increase.
Sub - Total	$2,765,000	$9,107,097	-$6,342,097	

continued on next page

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II. Line by Line- Engineering

SCOPE	ORIGINAL	FORECAST	VARIANCE	EXPLANATIONS / NOTES
UNDERRUNS				
Add FW Htr # 5 & # 6 Digital Level Controls	$2,450,000	[redacted]	[redacted]	Eliminated due to scope reduction (1-4 feedwater heaters no longer being replaced)
Emergency Containment Filter Removal	$724,000			Abandon in place vs. complete removal.
Station Electrical Load Study (ETAP)	$400,000			Reduction due to single ETAP analysis per outage vs. by mod.
Sub - Total	$3,574,000	$2,010,000	$1,564,000	
SCOPE INCREASES				
Heater Drain Tank Alternate Drains		[redacted]	[redacted]	Existing valves undersized for EPU conditions
Modifications for AST	$100,000			Extensive emergency control room ventilation and NaTB baskets vs. chemical injection
HVAC CBUS Switchgear (Actuals)				Actuals for 30% design. Mod not required for existings heat loads.
Turbine TAPS	$0			Needed for data collection for HP turbine design
Sub - Total	$100,000	$3,245,000	-$3,145,000	
SCOPE DELETIONS				
Rx Vessel Upper Head Temp Conver. (DHEHC) CRDM Anal.	$1,000,000	[redacted]	[redacted]	Not required per engineering evaluation
24 Month Fuel Cycle	$1,000,000			Not being pursued.
Pressurizer Loop Seal Removal	$1,000,000			Removal not required, setpoint change only.
Addition of Trim Coolers to Exciter	$400,000			Trim cooler not required. Existing cooler being replaced with larger capacity
Replace 2 LP FW Htrs - #3 (4 Sub - Total For 2 Units)	$300,000			Not required due to 3 condensate pump option.
Replace 2 LP FW Htrs - #4 (4 Sub - Total For 2 Units)	$300,000			Not required due to 3 condensate pump option.
FW Pump Thrust Bearings	$250,000			FW pump modifications not required due to 3 condensate pump option.
Cooler Replacement to Support Gen Hydrogen Cooling	$200,000			Hydrogen cooler engineering cost included in Siemens generator upgrade
Allowance For New Jet Impingement Shields And / Or Pipe Whip R	$150,000			Scope combined with main steam pipe supports and whip restraints
Current Transformers & Bushings Replacement	$20,000			Scope combined with Siemens generator upgrade cost
Containment Cooling Mods - Chilled Water (NCC's)	$650,000			Replacing NCCs only. Not adding chilled water.
Sub - Total	$5,270,000	$1,682,000	$3,588,000	
~~ICDR 1-Sb-3-EPU~~ TOTAL	$16,139,000	$37,422,097	-$21,283,097	~~004252~~

*Totals do not represent all Engineering items

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II. Scope Reductions

Major Scope Reduction Items

DESCRIPTION	EST.	PROs	CONs	RISK	MITIGATION
Reactor Vessel Upper Head Temperature Conversion	[redacted]	Cost Savings	Potential CRDM temperature issues	Medium	AREVA to perform CRDM Thermal Analysis
Replace the Main Transformers		Cost Savings	None	Low	Increased cooling capacity for existing transformers
Feedwater Heaters #1 thru #4 deletion		Cost Savings	Increased inspections required	Medium	Increased inspection cycles. Potential flow accelerated corrosion and internal vibration issues. May require some upgrades after EPU based on inspection results.
Addition of Trim Coolers to Exciter		Cost Savings	Potential reduced life cycle	Low	Siemens analysis/Project Management reviews
Alternate Spent Fuel Pool Cooling Sys		Cost Savings	During outages, intake and component cooling water will not be able to be removed from service	Medium	Additional Spent Fuel Pool Heat Exchanger
24 Month Fuel Cycle		Cost Savings	Not technically feasible	Low	Keep existing Fuel Cycle
Cooler Repl to support Gen H2 Cooling		Cost Savings	Potential reduced life cycle	Low	Additional monitoring
Use of Existing Feed Water Pumps		Cost Savings	Pumps will be operating the limit of their capability. Potentially increased maintenance	Medium	Sperforming field testing and dynamic analysis of secondary performance. Upgrading control instrumentation.
Containment Cooling Mods (NCCs)		Cost Savings, less equip to maintain	None	Low	Normal Containment Coolers are being replaced instead of a new, supplemental cooling system installed on the plant Aux. Bldg. roof.
Exciter Re-Wind		Cost Savings	Exciters are forty years old	Low	Exciters are inspected on a preventive maintenance program and the fleet has a spare.
Balance of Scope Reductions					
Total	$57,060,914				

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II. Scope Additions

Major Scope Additions & Increases

DESCRIPTION	REQUIREMENT	RISK OF NOT DOING	TOTAL VARIANCE
Condenser Replacement/Amertap	Results in increased MW's and increased plant reliability	MW Loss	[redacted]
Allowance for MSR Replacement	Results in increased MW's and increased plant reliability	MW Loss	
HP Internal & Rotor/Generator Rewind/Rotor Hi Lift	Results in increased MW's	Can not perform upgrade	
License Amendment Request Support Activities	NRC Required	LAR activities required to up-rate units	
Project Support - FPL Project Management Services	Appropriate contract and project administration	Reduced Contract Oversight can result in an unwanted plant event and budget/schedule over-runs.	
Steam Generator Moisture Carry Over	Reduce moisture of steam to turbine	Potential turbine damage	
Plant Craft Support	Various work scopes such as disposal costs, transportation, supplemental services	Significant to Station	
Replace FAC -identified piping	Higher Flows	Additional inspection of and maintenance cost	
Outage Extension	Support Plant during extended outage	Required Plant Support not available	
New Turbine Controls DH/EHC	New HP Turbine Upgrade	MW Loss; EPU not achieved	
Add'l Cooling Mods to TPCW/ICW	Additional cooling required for generator components	Limit unit load during Summer (MW loss)	
Isophase Bus Duct Cooling Sys	Upgrade requires replacement of Isophase Bus Duct system rather than increased cooling capacity	MW Loss	
License Amendement request - AST Mod's	Alternate Source Term LAR required modifications	Control Room Emergency Ventillation and Accident mitigation - NaTB Baskets	
Balance of Scope Increases			
Total ICDR 1.8b-3 EPU		001255	$405,166,593

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II. Area Summary

Material Costs

- **Major equipment estimates increased by $36.5M due to changes in fabrication costs and scope increases.**
  - Original estimates based on best known price of materials at the time. Condenser material cost ~ 75% higher than original Shaw estimate
  - Moisture Separator Reheater scope increased due to raising elevation and adding condensate drain tanks. Material increase ~ 32%.
  - Other large components exceeded estimates-Feedwater Isolation Valves, IsoPhase Bus, Turbine Digital Controls, Turbine Plant Cooling Water Heat Exchangers.
  - Field procured material costs are higher than assumed in the original estimates

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II. Line by Line - Material

This table represents the major variance in material costs between the original budget and the current forecast. The significant material cost differences are shown.

DESCRIPTION	ORIGINAL	FORECAST	VARIANCE	EXPLANATION / NOTES
OVER-RUNS				
Condenser Replacement	$ 30,000,000	$ [redacted]	[redacted]	Raw material price, Amertap, Cathodic protection
New Turbine Controls DEH / EHC	$ 4,800,000	$		Scope increase, replace captial spares
Add FW HTR #5 & #6 Digital Level Controls	$ 459,200	$		Based on Preliminary estimate, Forecast based on recent PTN installations
Add new fast closing FW isolation valves	$ 1,500,000	$		Current contract exceeds original budget
FW Regulating Valve Trim Replacement	$ 330,000	$		Current contract exceeds original budget
			$ -	
TOTAL	$ 36,889,200	$ 69,656,214	-$32,767,014	
UNDER-RUNS				
Replace HP FWH # 6	$ 6,000,000	$ [redacted]	$ [redacted]	
Alternate SFP Cooling System	$ 3,900,000	$	$	Reduced cooling capacity for incremental heat load (Risk item)
Allowance for replacement of gravity dr. piping	$ 250,000	$	$	Based on Preliminary estimate
			$	
TOTAL	$ 10,150,000	$ 5,223,873	$ 4,926,127	
SCOPE INCREASES				
MSR Replacement	$ 24,200,000	$ [redacted]	[redacted]	Unanticipated drain tanks, piping and valve size changes
Additional Cooling Mods to TPCW / ICW	$ 2,000,000	$		Heat Exchanger Costs, Original Scope - Valve installation
Modify the Iso-Phase Bus Duct Cooling System	$ 450,000	$		Scope change from Cooling to replace entire Isophase bus
Implement LEFM Check Plus MUR	$ 2,400,000	$		Current contract exceeds original budget
Control Room Emergency Ventilation	$ -	$		AST driven additional scope
TOTAL	$ 29,050,000	$ 47,179,442	-$18,129,442	
SCOPE DELETIONS				
Replace The Main Transformer	$ 16,000,000	$ [redacted]	$ [redacted]	Uprate vs. Replacement
Replace LP FWH #1	$ 4,000,000	$	$	Not required for 3 Condensate Pump option
Replace LP FWH # 2	$ 3,000,000	$	$	Not required for 3 Condensate Pump option
Replace LP FWH # 3	$ 3,000,000	$	$	Not required for 3 Condensate Pump option
Replace LP FWH # 4	$ 3,000,000	$	$	Not required for 3 Condensate Pump option
Feedwater Pump Thrust Bearings	$ 800,000	$ -	$	Mid Cycle scope review reductions (Risk item)
Main Steam Piping support Mods	$ 200,000	$ -	$	Based on Preliminary estimate
Increase Aux FW Pump Capacity & CST volume	$ 100,000	$ -	$	Engineering Evaluation (Risk item)
TOTAL	$ 30,100,000	$ 9,210,200	$ 20,889,800	
ICDR 1 6b-3 EPU				001257
GRAND TOTAL	$ 106,189,200	$ 131,269,729	-$25,080,529	

*Totals do not represent all Material items

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III. Implementation

Docket No. 110009-EI
William R. Jacobs, Jr.
Exhibit WRJ(FPL)-8
July 26, 2009 ESC Meeting
(Turkey Point) Presentation
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Project Implementation

- **Original Project Organization structure contemplated in 2007 was with seconded (contract) staffing overseeing the EPU effort**
  - Original Structure
    - -- Self Perform model (FPL + Contractors)
    - -- Contracted staffing was approximately 88+ for PTN
    - -- Fast track for large component purchase with licensing and design in parallel
  - Early 2008 Decision to utilize EPC Contractor
  - Project Organization structure changed based on contract award to Bechtel EPC Provider
    - -- FPL Management stationed at PTN 01/01/2009
    - -- Oversight reduced to 52 FTE including Engineering, Project Management and Project Controls

III. Implementation

Summary of all implementation costs

Cost Center	Original Budget	Forecast at Completion	Vs. Current Budget	To Go
Implementation	$192,033,500	$438,589,705	($246,556,205)	$386,934,648
EPC Construction	[redacted]	[redacted]	[redacted]	[redacted]
EPC - Bechtel Indirect Constr.				
Siemens Labor				
Siemens Alliance Open/Close				
Outage Extension Costs				
Project Support - FPL Home Office				
FPL Project Management				
Plant Craft Support				
Start-Up				
Training & Procedures				
RX Vessel Upper Head Temp. Conv.				
Steam Gen. Moisture Carry Over				
Pressurizer Loop Seal				
MSR - Crossover Piping / Valve				
Misc. Non-EPC Work				

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Current forecast to complete scope is $439M vs. the current budget of $192M

- Capacity of organization does not support self perform. EPC construction costs will be higher. Risk of outage schedule impacts are reduced.
- Lack of Constructability reviews of the Original Estimates
- Increased Scope in original modifications
- Increased number of required modifications
- Bechtel Field Non-manual, Home Office and Indirects

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III. Implementation Line by Line

Original implementation estimates based on limited field information. Costs for EPC contractors are higher than anticipated.

DESCRIPTION	ORIGINAL	FORECAST	VARIANCE	EXPLANATION / NOTES
OVER-RUNS				
Condenser Replacement/Ameritap	23,500,000			Increased work scope definition: heavy haul, handling. Increased scope, Ameritap, cathodic protection, Bechtel Indirects
Project Support - FPL Project Management Services	19,624,800			Original estimate based on preliminary staffing plan (5.5% of total cost) 52 FTEs
HP Turbine Siemens Alliance - Open/Close Cost	0			Not included in turbine scope estimate
Generator - Rotor Replace Open and Close	7,000,000			Not included in generator rewind dollars
Project Support - 5 FPL Home Office	4,368,000			Original estimate based on preliminary implementation staffing plan, forecast is combined support
Generator - Stator Rewind	7,000,000			Add'l individual Siemens tasks wrapped into one project (H2 cooler, CT's, bushings, rewind)
Replace 2 HP FW Htrs - #6 (4 Total For 2 Units)	1,650,000			Increased work based on detailed scope, Bechtel Indirects
Replace 2 HP FW Htrs - #5 (4 Total For 2 Units)	1,650,000			Increased work based on detailed scope, Bechtel Indirects
Install Condensate Pumps - Replace Internals	1,800,000			Mid Course Scope Review - Added additional work for 3-pump operation.
Allowance for Additional Cooling Mods to TPCW/ICW	1,500,000			Scope growth - Hx Rplcmt vs isolation valves
BOP Instrumentation & Control Setpoint, Rescaling & Hardware Mo	210,000			Increased work scope due to better scope definition
Allowance For Replacement Of Gravity Drain Piping - #5 Heater	1,162,400			Increased work based on detailed field walkdowns
Main Steam Piping Support Mods And / Or New Supports	350,000			Increased scope due to added supports
Add New Fast closing FW Isolation Valves Outside Containment	6,000,000			Scope changed due to different valve type
Add FW Htr # 5 &# 6 Digital Level Controls	2,640,000			Mid Course Scope Review - Scope reduced but per unit estimate increased
Implement LEFM Check Plus MUR	3,100,000			Increased work based on detailed field walkdowns
Upgrade MSIV Internals	150,000			Implementation costs
TOTAL	$ 81,705,200	$ 255,056,832	-$170,359,632	
UNDER-RUNS				
Containment Cooling Mods - Chilled Water (NCC's)	5,500,000			Allocated to other Mods
Main Steam Safety Valve / Piping Modification	700,000			Conservative original estimate based on worst case scope
Alternate Spent Fuel Cooling System	3,900,000			
TOTAL	10,100,000	3,970,000	$5,230,000	

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III. Implementation - Line by Line

DESCRIPTION	ORIGINAL	FORECAST	VARIANCE	EXPLANATION / NOTES
SCOPE INCREASES				
Allowance for MSR replacement	[redacted]	[redacted]	[redacted]	Increased work dus to drain tank additions, height elevation change and large bore pipe
Replace FAC-Identified Piping				Low original estimate based on Shaw recommended scope, Bechtel indirects
Training & Procedures				Specific item not included in Shaw's base scope
Modify The Iso Phase Bus Duct Cooling System				Scope evolution and increased cost to implement duct replacement vs. coolers
Replace The Main Transformers				Total contracted cost for cooler replacement
O&M				Anticipated material write-offs
Heater Drain Tank Alternate Drains				Additional work required
General Conditions (Env. Permitting, Other)				Scope evolution
Turbine Gantry Crane scoping study				New scope for mission critical
Turbine TAPS				New scope for turbine performance testing
Steam Dump Valves/piping Modifications				Increased work due to better scope definition
Modifications for AST				New LAR scope: Control room ventilation, NaTB Baskets (vs. Chemical injection)
Replace normal and emergency heater drain valves				Implementation costs
New turbine control DEH/EHC				Implementation costs: Includes capital spare replacement components not in base scope
Outage Extention cost				Trued up for actual outage duration
FW Regulating Valve (FRV) Trim Replacement				Implementation cost
Steam Generator Moisture Carry over(errosion / corrosion degrad				Bechtel support of Westinghouse
TOTAL	$57,454,300	$144,987,559	-$87,533,259	
SCOPE DELETIONS				
24 Month Fuel Cycle	[redacted]	[redacted]	[redacted]	Scope decrease based on evaluation
Replace 2 LP FW Htrs - #3 (4 Total For 2 Units)				Mid Cycle scope review reductions
Replace 2 LP FW Htrs - #4 (4 Total For 2 Units)				Mid Cycle scope review reductions
Pressurizer Loop Seal Removal				Scope decrease based on evaluation
Addition of Trim Coolers to Exciter				Scope evolution and distribution into other mod
Replace 2 LP FW Htrs - #1 (4 Total For 2 Units)				Mid Cycle scope review reductions
Replace 2 LP FW Htrs - #2 (4 Total For 2 Units)				Mid Cycle scope review reductions
Cooler Replacement to Support Gen Hydrogen Cooling				Scope evolution from Shaw evaluation and distribution into other mod
FW Pump Thrust Bearings				Mid Cycle scope review reductions
Allowance For New Jet Impingement Shields And / Or Pipe Whip R				Engineering evaluation
Nozzle block and blade modification				Incorporated into turbine work
Reactor Vessel upperhead temp conversion CRDM analysis				Engineering evaluation; not required
New Turbine High Lift valve Mod (See item 39)				Incorporated into turbine work
TOTAL	40,335,000	3,067,500	$37,267,500	
~~IDRP 4 OL-3 EPU~~ GRAND TOTAL	189,594,500	407,081,891	-215,395,391	001283

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*Totals do not represent all Implementation items

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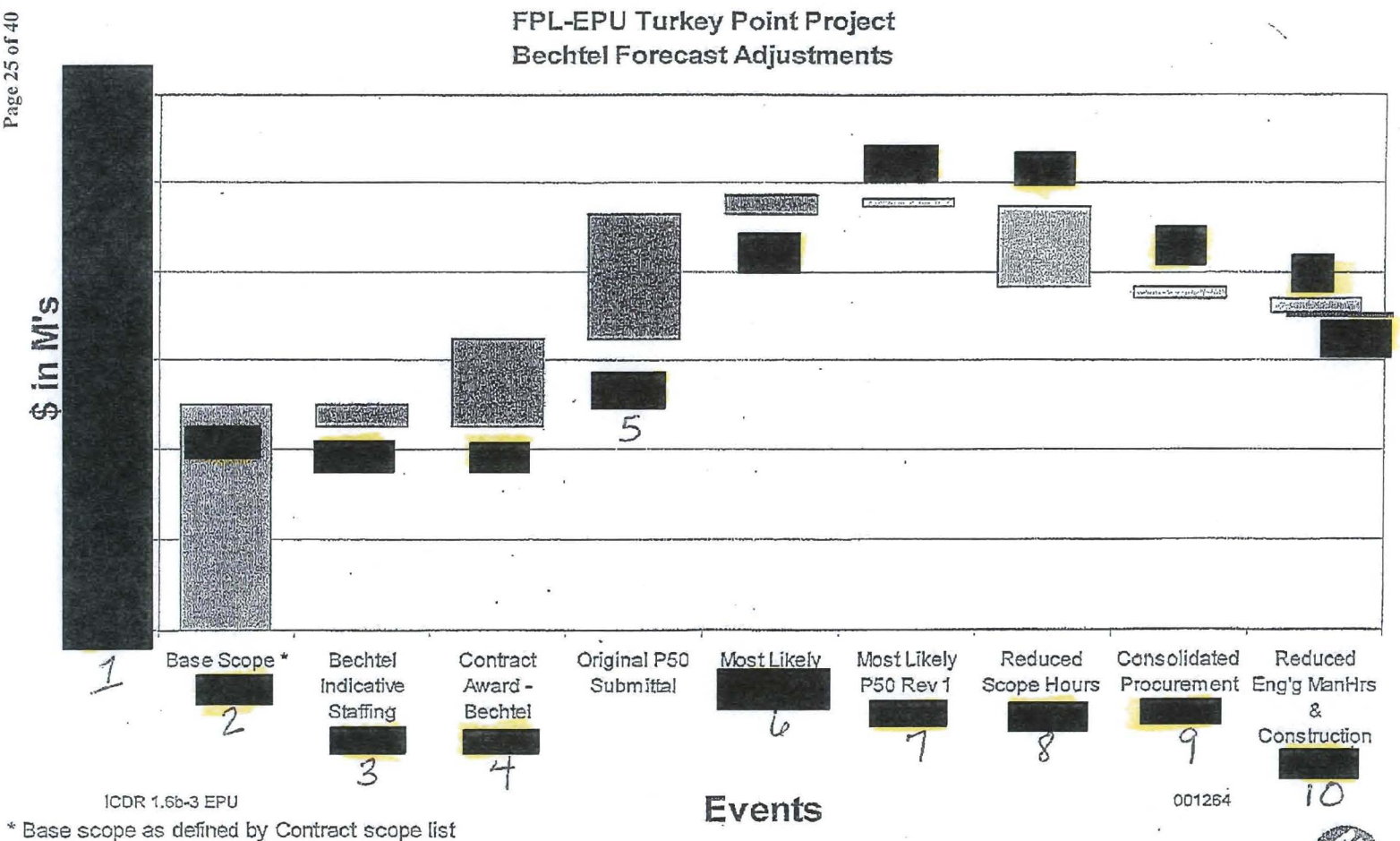
III. Implementation

Bechtel Proposal Estimate Changes



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III. Implementation

This timeline shows original Bechtel costs and the changes that resulted in a reduced EPC costs

PTN EPC Scope and Forecast Evolution

Approx. Date	5/15/2008	Prior to contract (10/15/08)	11/07/08	05/03/09	06/30/09	7/1/2009 ??	07/02/09	07/02/09	07/14/09
Item	FPL Project Forecast prior to EPC (Shaw Estimates) We only have dollars	FPL Project Forecast based on Bechtel Indicative staffing.	Contract Award date. FPL Project Forecast based on Bechtel Manning Submittal	Original Bechtel PSO Submittal	Most likely PSO	Same as previous submittal with clarification of scope - $ 4.765 M	PSO with reduced scope (Changes to MODS scope from Mid-cycle scope review)	PSO with reduced scope (Consolidation of Procurement & Reduction in Management Services)	PSO with reduced scope and reduced Eng. & Craft Hrs after MOD by MOD Estimate Reviews
Total NM Man-hours		[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted] 1
Total Craft Hrs									2
Total Dollars	[redacted]	$ [redacted]	$ [redacted]	[redacted]	$ [redacted]	$ [redacted]	$ [redacted]	$ [redacted]	$ [redacted] 3
Scope	Based on 43 MODS per Unit.	33 EPC Modifications Identified in Spec M-156.	Based on 43 EPC Modifications Identified in Spec M-156 Rev.1	Based on 43 EPC Modifications Identified in Spec M-156 Rev.1 plus additional scope for AST MOD's and Wraparound MOD's	Based on 43 EPC Modifications Identified in Spec M-156 Rev.1 including scope revision's to MOD plus additional scope for AST MOD's and Wraparound MOD's	Based on 43 EPC Modifications Identified in Spec M-156 Rev.1 including scope revision's to MOD plus additional scope for AST MOD's and Wraparound MOD's	Based on 43 revised/eliminated EPC Modifications Identified in Spec M-156 Rev.1 including scope revision's to MOD's along with Reduction to Design Engr & Supv. And FE hours hrs. based on Area and NSR strategy.	Based on 43 EPC Modifications Identified in Spec M-156 Rev.1 including scope revision's to MOD's, Reduction on Design Engr & Start up hrs and removing Management Service	Based on 43 EPC Modifications Identified in Spec M-156 Rev.1 including scope revision's to MOD's, Reduction on Design Engr & Start up hrs and removing Management Service & reductions due to MOD estimates

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III. Line by Line - Total

This table represents the total variance between the original budget and the current forecast. Further breakdown for LAR, engineering and implementation appear on other slides

DESCRIPTION	ORIGINAL	FORECAST	VARIANCE	EXPLANATION / NOTES
OVER-RUNS				
Condenser Replacement/Amertap	$54,000,000			Balance of Plant material cost, heavy haul, Amertap replacement, Cathodic protection and Bechtel Indirects
HP Internals & Rotor/Generator Rewind, Rotor/ Hi-Lift Valves	$100,062,000			Siemens' proposal greater than original estimate
License Amendment Request Engineering, Licensing and Support	$28,670,000			NSSS/Fuel, BOP Engineering, Licensing, LAR Support, NRC Fees
New Turbine Controls DEH/EHC	$10,480,000			Implementation costs, includes capital spare replacement components - not in base scope
Allowance for Additional Cooling Mods to TPCW/ICW	$3,700,000			Heat Exchanger Costs, Original Scope - Valve installation
Install Condensate Pumps - Replace Internals	$5,000,000			New Pumps, Re-wind Motors, Recirc Piping, HVAC
Replace 2 HP FW Htrs - #5 (4 Total For 2 Units)	$4,950,000			Heater Cost, increased work based on implementation details
Allowance For Replacement Of Gravity Drain Piping - #5 Heater	$1,612,400			Increased work based on detailed field walkdowns
Implement LEFM Check Plus MUR	$6,000,000			Based on preliminary estimates
Replace 2 HP FW Htrs - #6 (4 Total For 2 Units)	$7,995,000			Based on preliminary estimates
Main Steam Piping Support Mods And / Or New Supports	$850,000			Engineering identified additional supports required
BOP Instrumentation & Control Setpoint, Rescaling & Hardware Mo	$1,265,000			Increased work scope due to better scope definition
Add New Fast closing FW Isolation Valves Outside Containment	$8,580,000			Based on preliminary estimates
Add FW Htr # 5 & # 6 Digital Level Controls	$5,548,200			Reduced scope for LP Heaters
Steam Dump Valves/piping Modifications	$360,000			Increased work scope due to better scope definition
Simulator	$850,000			Reactor Core Simulator model / versus entire EPU parameter change model
FW Regulating Valve (FRV) Trim Replacement	$880,000			Increased material costs
"Total Walk-Thru" Over-Runs Sub-Total	$240,603,600	$463,174,382	-$222,570,782	
UNDER-RUNS				
Containment Cooling Mods - Chilled Water (NCC's)	$10,150,000			Scope reduced from Supplemental Chillers on Aux roof to NCC's
Main Steam Safety Valve / Piping Modification	$1,175,000			Based on preliminary estimates
"Total Walk-Thru" Under-Runs Sub-Total	$11,325,000	$9,968,686	$1,356,314	

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III. Line by Line - Total

DESCRIPTION	ORIGINAL	FORECAST	VARIANCE	EXPLANATION / NOTES
SCOPE INCREASES				
Allowance for MSR replacement	$32,360,000	[redacted]	[redacted]	Material Cost, Elevated MSRs- rework Crossover Pipes, drain tank addition
Project Support - FPL Project Management Services	$28,419,300			Original based on preliminary needs assessment (total 5.5% of total cost); based on 52 FTEs
Steam Generator Moisture Carry Over (Erosion-Corrosion Degrada	$25,000,000			Bechtel support of Westinghouse
Plant Craft Support	$0			Project Services not included in base: disposal, NPS, security, transport etc
Replace FAC-Identified Piping	$6,020,000			Implementation cost, Bechtel Indirects
Outage Extension Costs	$18,000,000			Trued up for actual outage durations
Modify the Isolated Phase Bus Duct Cooling System	$1,040,000			Eng determined scope changes from cooler replacement to isophase duct, also includes Generator Neutral work
Transfer of work responsibility (Nurses/Ops, etc.)	$0			Bechtel work transferred to FPL
Modifications for AST	$1,500,000			New LAR scope: Control Room ventilation, NaTB baskets (vs chem injection)
Training & Procedures	$0			Specific item not included in Shaw's base scope
Start-Up	$0			Specific item not included in Shaw's base scope
Heater Drain Tank Alternate Drains	$0			Additional work required
Temp. Facilities	$210,000			Warehousing and increased inprocessing not in base
AFW Controls	$0			Additional work required
Replace Normal & Emergency Heater Drain Valves	$2,062,600			Implementation costs
O&M	$0			Material write-off
Turbine Gantry Crane scoping study	$0			Not in original scope - Crane is mission critical
Turbine TAPS	$0			New scope for turbine performance testing
Upgrade Internal Trim and Controllers on the MSR Reheater Steam	$0			Additional work required
HVAC CBUS Switchgear (Actuals)	0			Additional work required, then Mid Cycle scope review
General Conditions (Env. Permitting, Other)	$0			Additional work required
SGFP - Actual	$0			Expended engineering dollars prior to mid course scope review
"Total Walk-Thru" Scope Increases Sub-Total	$114,611,900	$297,207,710	-$182,595,810	

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III. Line by Line - Total

DESCRIPTION	ORIGINAL	FORECAST	VARIANCE	EXPLANATION / NOTES
SCOPE DELETIONS				
RV Vessel Upper Head Temp Conver.	$14,000,000	[redacted]	[redacted]	Engineering Evaluation; not required
Replace The Main Transformers	$18,394,200			Scope reduced from replacement to cooler replacement
Addition of Trim Coolers to Exciter	$4,500,000			Not required due to turbine plant cooling water replacement
Alternate SFP Cooling System	$8,000,000			Reduced cooling capacity for incremental heat load (Risk item)
Replace 2 LP FW Htrs - #4 (4 Total For 2 Units)	$4,950,000			Not required for 3 Condensate Pump option
Replace 2 LP FW Htrs - #3 (4 Total For 2 Units)	$4,950,000			Not required for 3 Condensate Pump option
24 Month Fuel Cycle	$3,000,000			Engineering Evaluation; not required
Cooler Replacement to Support Gen Hydrogen Cooling	$2,800,000			Part of Generator scope
Replace 2 LP FW Htrs - #1 (4 Total For 2 Units)	$5,950,000			interferences
Pressurizer Loop Seal Removal	$3,804,000			Engineering Evaluation; not required
Replace 2 LP FW Htrs - #2 (4 Total For 2 Units)	$4,950,000			Not required for 3 Condensate Pump option
FW Pump Thrust Bearings	$1,200,000			Mid Cycle scope review reductions
LP Turbine - Analysis	$400,000			Engineering Evaluation; not required
Allowance For New Jet Impingement Shields And / Or Pipe Whip R	$375,000			Engineering Evaluation; not required
Community Outreach	$370,000			Mid Cycle scope review reductions
Update EQ Qualification	$250,000			Engineering Evaluation; not required
Update Checksum Software For FAC	$100,000			Engineering Evaluation; not required
Emergency Containment Filter Removal	$1,939,000			Mid Cycle scope review reductions (Abandon in place)
Upgrade MSIV Internals	$670,000			Engineering Evaluation; not required
Increase Aux FW Pump Capacity & CST Volume	$300,000			Engineering Evaluation (Risk items to replace rotating element)
"Total Walk-Thru" Scope Deletions Sub-Total	$80,902,200	$25,407,411	$55,494,789	
OTHER				
Station Electrical Load Study (ETAP)	$400,000	[redacted]	[redacted]	
Project Support - 5 FPL Home Office	$6,825,000			
Escalation	$0			Original escalation included in individual line items
NSSS Material / Mainstream Check Valve Implementation	$0			
Project Escalation (Shaw)	$62,008,928			
Project Contigency (Shaw)	[redacted]			
"Total Walk-Thru" Other Sub-Total	$301,738,410	$36,827,649	$264,910,761	
TOTAL EPU PTN PROJECT COSTS	$749,181,110	$832,585,838	-$83,404,728	

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III. Risk and Mitigation

	Origin Date	Risk Event Description	H/M/L	Impact level	Type	Maximum Cost Exposure ($000)	Type of Estimate	Prob Level	Weighted Risk Exposure ($000)	Impact Description	Mitigation Action
	Turkey Pt.									RISK	
1	9/8/08	Implementation and Schedule execution may cost more than Proforma (Bechtel Engineering and Implementation)		Significant	Cost					Contingency will be needed to expended for any shortfalls not predicted by Proforma Note: Bechtel indicates costs will be higher than indicative bid	Assessing scope and staff estimates See Mitigation Plan for Details
2	4/23/09	Turbine Gantry Crane travel speed, available laydown space, etc. Crane may be Less than Adequate to efficiently support the EPU outages		Critical	Schedule					Inability to efficiently remove and replace equipment needed for power uprate within the proposed Outage time frame	Obtain qualified OEM to evaluate the overall condition of the Crane and provide recommendations Review recommendations and implement repairs as necessary to improve crane reliability and condition See Risk Mitigation Plan for details
3	10/10/08	Error discovered in the Containment Integrity Design Basis Analysis		Critical	Programmatic					The Error (non conservative) may significantly reduce the Containment Pressure Margin needed for the Extended Power Uprate conditions	Favorable results with heat sink model. Further CCW mods may be necessary. Performing KT Analysis to determine scope and significance of modification See Risk Mitigation Plans for Details
4	2/4/09	Site Capacity: Given the total quantity of work planned (including work from other projects), the overall work imposed on the station for such items as PORC reviews, procedures, training, WO Reviews, etc. may be beyond the capacity for the station to support	M	Significant	Cost/ Schedule					Potential to extend the Outage and/or slip a cycle for the in-service date	Being reviewed per Bechtel levelization and Outage Scope Plan Meetings routinely being held with station to ensure they are integrated with the project
5	10/14/08	There is potential that Legacy Analysis or License basis issues may be uncovered during re-analysis for EPU LAR		Significant	Programmatic					Three such items have already been identified: PB FW temp, PTN CTMT analysis and PTN ECP dose PTN has already experienced emergent mods and additional analysis	EPPI-345 new instruction that defines risk identification and mitigation utilizing WM-AA-1000.
6	1/8/09	New NRC mandated Maintenance rule working hours will further limit allowed working hours	M	Marginal	Cost					Potentially extend outage Durations and/or increase costs	EPU management working with Licensing to ensure an acceptable procedure which will minimize the Impact to EPU

[redacted]

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III. Risk and Mitigation

	Origin Date	Risk Event Description	WMTS	Impact level	Type	Maximum Cost Exposure ($000)	Type of Estimate	Prob Level	Weighted Risk Exposure $000)	Impact Description	Mitigation Action
	5/29/08	WEC and SHAW vendor staffing level may not be sufficient to support project	M	Significant	Schedule	[redacted]				Could cause delays with LAR schedule and/or cost additional monies	Westinghouse provided Recovery Plan Mitigation actions being implemented Will continue to monitor the effectiveness of actions Agreement on re-baselining reached; no impact to end date for Shaw and WEC
8	4/23/09	FPL PRA support is not adequate to complete all activities within the schedule.	H	Significant	Schedule					There are a large number of activities which need to be performed as well as PSL and PTN PRA activities are being performed concurrently with all tasks being scheduled in series. PRA group has limited resources to accomplish this and several tasks have no resources assigned at all.	Determine if any activities can be accomplished in parallel Supplement staff through EPU if necessary
9	6/3/2008	Transition to Nuclear Asset Management Systems (NAMS)	M	Marginal	Programmatic					May cause delays with review and approval of work planning.	Per Fleet wide Change Management Plan Hold meeting with NAMS coordinator and Site PMs
10	2/12/08	License Amendment Request NRC Review could be delayed due to errors and omissions - NRC Acceptance - NRC Technical Review - ACRS Review - SBLOCA Confirmatory Analysis	H	Critical	Regulatory / Schedule					Depending on the extent of the delay, could result in additional cost and extension of the project length Engineering Resources are needed to support LAR	1. Prepare LAR consistent with RS-001, NRR Review Standard for Extended Power Uprates. • Develop EPPI for format and level of detail 2. Use Ginna EPU submittal as a guide for format and level of detail 3. Sequester reviews and challenge boards at certain interim LAR milestones • Self Assessment after 1st LAR Section 4. Multi-party peer reviews using industry and regulatory experts 5. Advance meetings with NRC prior to submittal 6. VP Nuclear Power Uprate met with NRR management 7/21/08 7. Monthly meetings with NRR 8. CNO met with EDO on 3/23 to discuss schedule 9. Plan to establish a presence in Washington to coordinate NRC questions and responses to RAIs Current schedule adequate to meet current needs
11	4/8/08	Based on the amount of work planned, the work may not be sufficiently integrated to prevent interference with implementation	M	Marginal	Schedule					Potential to extend the Outage duration	Schedule Fragnets to be reviewed by Bechtel and Project team after Scope, Outage Durations and Crane condition are better defined

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III. Risk and Mitigation

	Origin Date	Risk Event Description	H/M/L	Impact level	Type	Maximum Cost Exposure ($000)	Type of Estimate	Prob Level	Weighted Risk Exposure ($000)	Impact Description	Mitigation Action
12	7/18/09	SDVs to Condenser and Runback	M	Significant	Cost	[redacted]				Potential Plant Trips / Loss of MW	Install Runback modifications
13	7/18/09	Interim Operation Evaluation (Umbrella Operation/Evaluation)		Significant	Cost					Loss of interim setpoints and configuration; Potential of system transients/trip	Prepare evaluation, Revise appropriate procedures, Ops training
14	7/18/09	Runback Circuit Mods for Condensate, SG feedwater, and heater Drains Pumps		Critical	Cost					Potential Plant Trips / Loss of MW	Install successful runback circuit
15	7/18/09	Wrap Around Mod for LAR		Significant	Cost					Plant Configuration may not match Plant Technical Specification	Identify inputs, Perform modification
16	7/18/09	Gland Steam Piping to Gland Steam Condenser is undersized		Significant	Cost					Potential Turbine damage	Resize the gland steam piping
17	7/18/09	SG Feedwater Pump Recirc Lines		Significant	Cost					Potential feedpump damage	Implement modification to increase recirculation pipe size
18	7/18/09	CCW Cooling Capacity Undersized	M	Critical	Cost					Exceed Technical Specification limits for component cooling water components	Complete analysis and implement any analysis
19	7/18/09	Emergency Containment Filter Removal (Abandon in place is budgeted)	M	Marginal	Cost					Potential reduction to outage durations not realized	Remove one housing and removal of internal components of two
20	7/18/09	Add Fdwtr Htr #1 thru #4 Digital Level Controls	M	Significant	Cost					Control Stability during transients	Implement modification
21	7/18/09	Turbine Building Structure Mods (potential)	M	Significant	Cost					Vibration and potential equipment damage	Repair building structure / structure analysis
22	7/18/09	Siemens generator bonus (per contract)	M	Significant	Cost					Unbudgeted funds	Improve schedule to defray additional costs

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III. Risk and Mitigation

Risk Matrix

	Origin Date	Risk Event Description	H/M/L	Impact level	Type	Maximum Cost Exposure ($000)	Type of Estimate	Prob Level	Weighted Risk Exposure ($000)	Impact Description	Mitigation/Action
22	7/8/09	Siemens Turbine bonus Upgrade (per contract)	M	Significant	Cost	[redacted]				Unbudgeted funds	Improve schedule to defray additional costs
24	7/22/09	Spent Fuel Cooling 100% Redundant Heat Exchanger	M	Significant	Cost					Single point failure vulnerability decreased plant margin	Install second redundant Heat Exchanger
25	7/22/09	Additional Westinghouse and Shaw PIN growth		Significant	Cost					Unbudgeted funds	Scope control
26	7/22/09	Aux Feedwater Pump Upgrade	M	Significant	Cost					Required Pump overhauls to meet Plant Technical Specifications	Ensure pumps upgraded including spare; complete analysis
27	7/22/09	Lack of Completeness of MOD Eng.& Lack of Detail Estimates		Significant	Cost					Future cost overruns due to scope growth	Complete Engineering
28	7/22/09	Transportation for Siemens Component		Significant	Cost					Cost overrun per contract	Fund cost
29	7/22/09	Siemens Implementation: Change and Delay Claims		Significant	Schedule					Unbudgeted funds	Strong Contract Management and Oversite
30	7/22/09	BOP Piping Vibration Modifications		Significant	Cost/ Schedule					Evaluate existing & expected EPU vibration to BOP piping and implement recommended mods as necessary	Engineering evaluation in progress, scope has not been identified
									$147,097		

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- Undefined Scope in Formal Analysis [redacted] 1
- High Risks accounts for [redacted] of weighted Risks 2 Exposure
- Medium Risks accounts for [redacted] of weighted Risk 3 exposure

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IV. NRC Schedule

IV. NRC Schedule

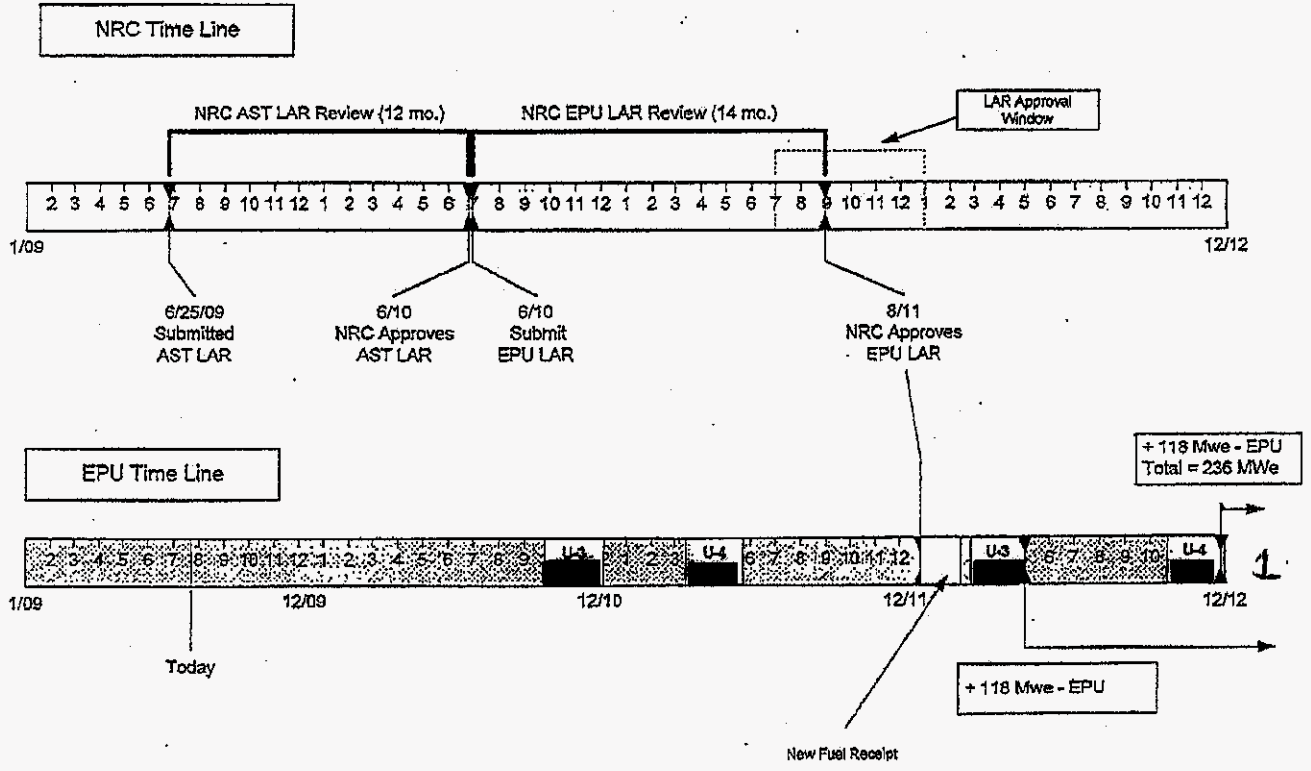
NRC LAR Schedule

- **AST LAR submitted 6/25/09**
  - Staff acceptance review in progress
  - Responding to two requests
  - 12 month review projected

- **EPU LAR Planned submittal in June 2010**
  - 14 month review period projected

IV. NRC Schedule

Turkey Point Timeline



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V. Lessons Learned

- **Scope Control**
  - Did not use formal process such as Plant Review Board to approve scope growth during design process prior to 01/01/09
    - -- No formal cost benefit was performed on design changes
    - -- Changes were made late in the designs (design evolution)

- **Cost Reporting and Early Warning**
  - No contingency established of emergent items or increased scope
  - Must include contingency based on level of risk/progress on project
  - Key Performance Indicators not established early
  - Individual Modifications Budgets and Site Department budgets not established

V. Lessons Learned

- **Contingency and Risk Assessment**
  - Did not assess the licensing risks and establish contingency that was aligned to the licensing risk
  - Did not look at individual projects risks early such as Feedwater heaters
  - Need a better way to assess risks to material costs increases
  - Under estimated the risk and costs associated with the fast track project concept
  - Did not assess the regulatory risk of the linked LAR to AST

- **NRC Licensing Costs**
  - Need a formal licensing risk analysis of the LAR and related issues
  - Did not assess the risk of legacy plant issues associated with LAR analysis
  - Need to follow industry trends for estimating licensing costs and factor in plant specific scope considerations

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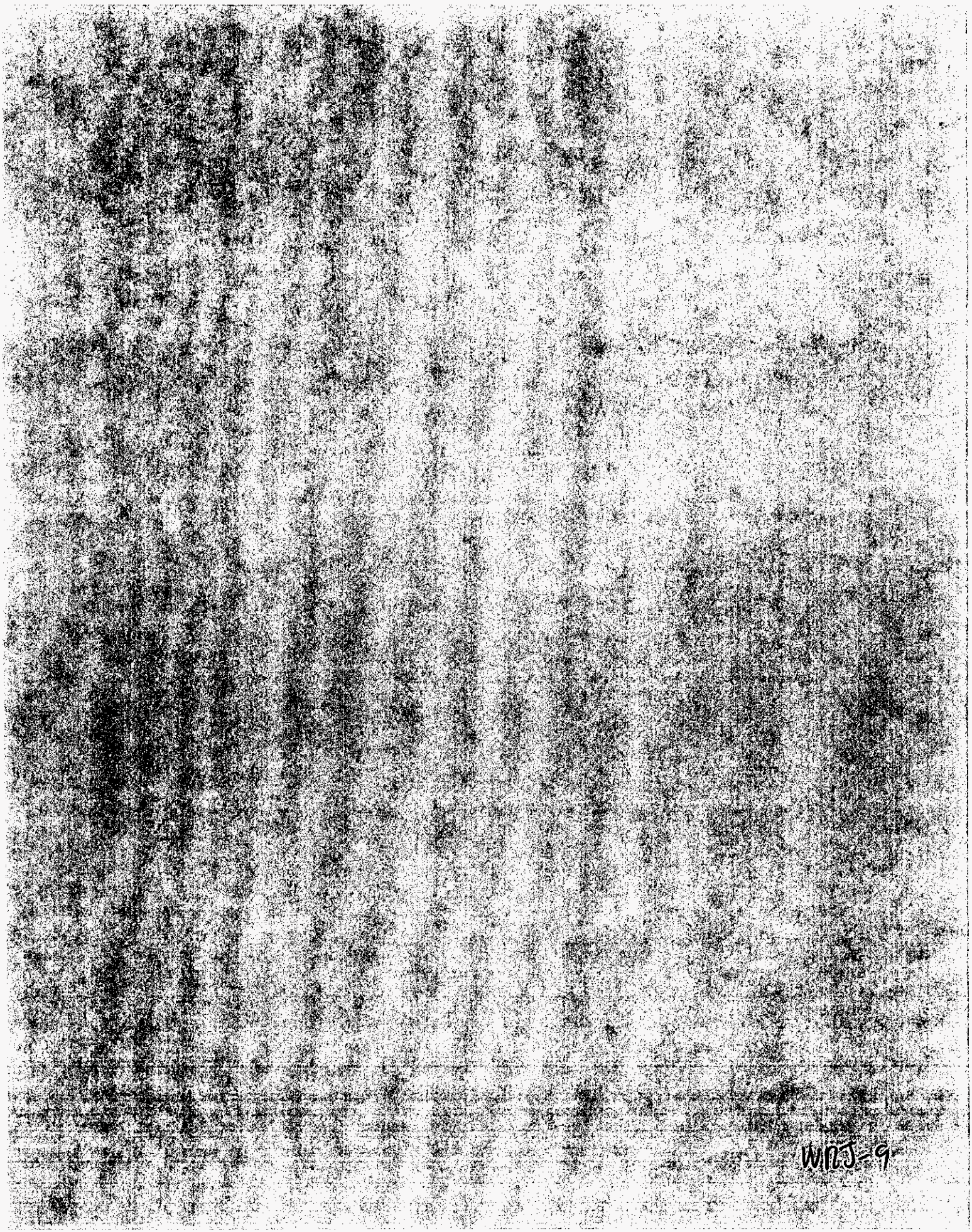
V. Lessons Learned

- **Fast Track Modification Control**
  - Looked at the project only from a high level risk assessment
  - Should have don a more detailed risk assessment when establishing the budget
  - Did not assess the quality of original site staffing due to fast tracking



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DRAFT

Extended Power Uprates
Project Update
Saint Lucie

July 25 2009

Agenda

- **Background**
- **Overview**
- **Area Summary & Line by Line**
- **Implementation**
- **Risk and Mitigation**
- **Implementation Options**
  - NRC Licensing Schedule
  - 35/85 Option
  - FPSC Needs Filing
  - Cost & MWE
  - CPVRR Results summary
- **Lessons learned**

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Background

- **Fast Track schedule working outside the project management process resulted in cost uncertainty**
- **Schedule plan based on minimizing regulatory risk**
  - Activity progression different from conventional sequence
- **Full scope still not known**
  - Many costs are still at the conceptual level

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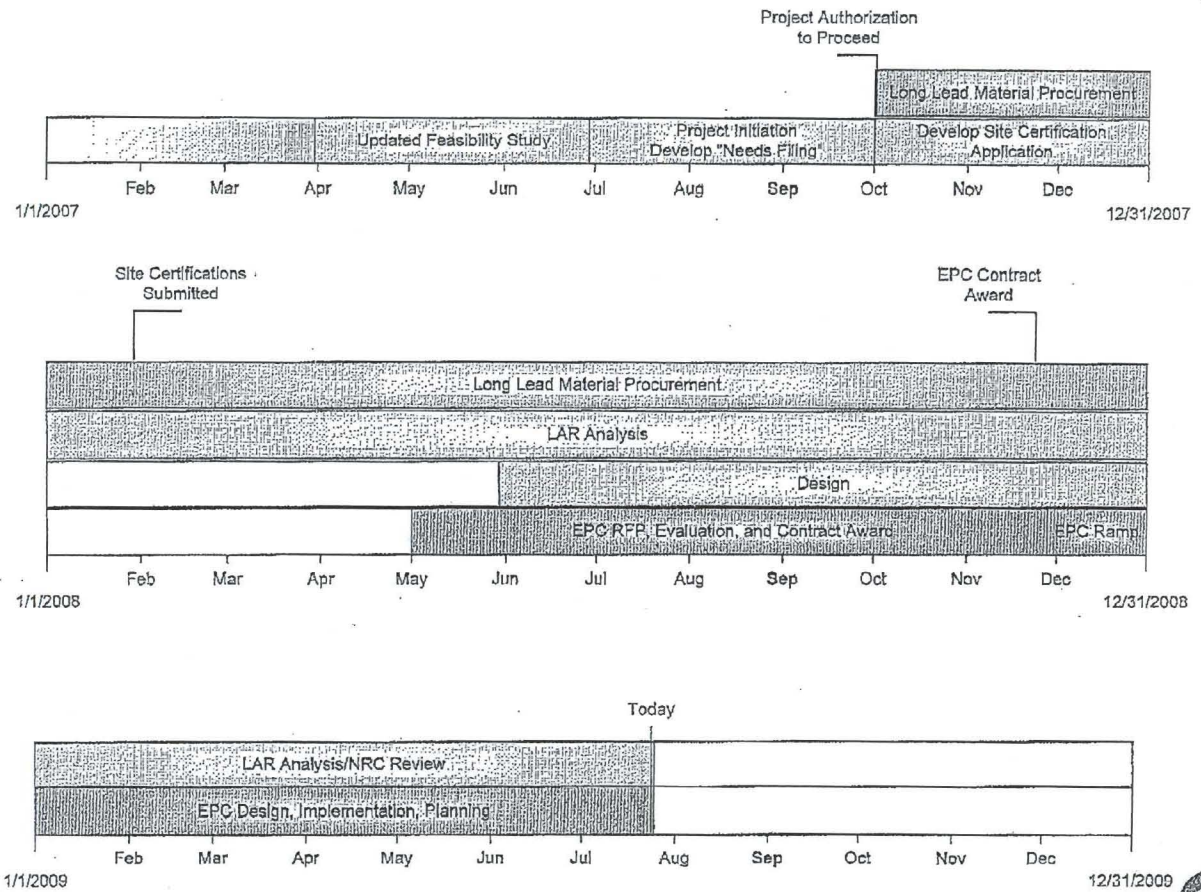
Background

Key Activities and Milestones Leading to Current Situation (2007-2009)



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I. Overview

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I. Overview

Plans and Targets

	PROFORMA		FORECAST	
	U-1	U-2	U-1	U-2
LAR Submittal	9/01/09	9/01/09	9/30/09	1/31/10
1st Outage Duration	[redacted]	[redacted]	[redacted]	[redacted]
2nd Outage Duration				
In Service Date	October 2011	April 2012	December 2011	June 2012
MWE	103	103	129 [5]	136 [5]

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Notes

All Outage durations to be reviewed & approved by CNO upon completion of scope definition

[1] Outage durations driven by Generator rewind currently in the approved Outage schedule

[3] Outage duration driven by HP & LP Turbine and MSR Replacements

[4] Target goal for Six Sigma Team rewind outage durations

[5] MWe based on Siemens heat balance (contract target)

Longer duration Outages have been included in the business model

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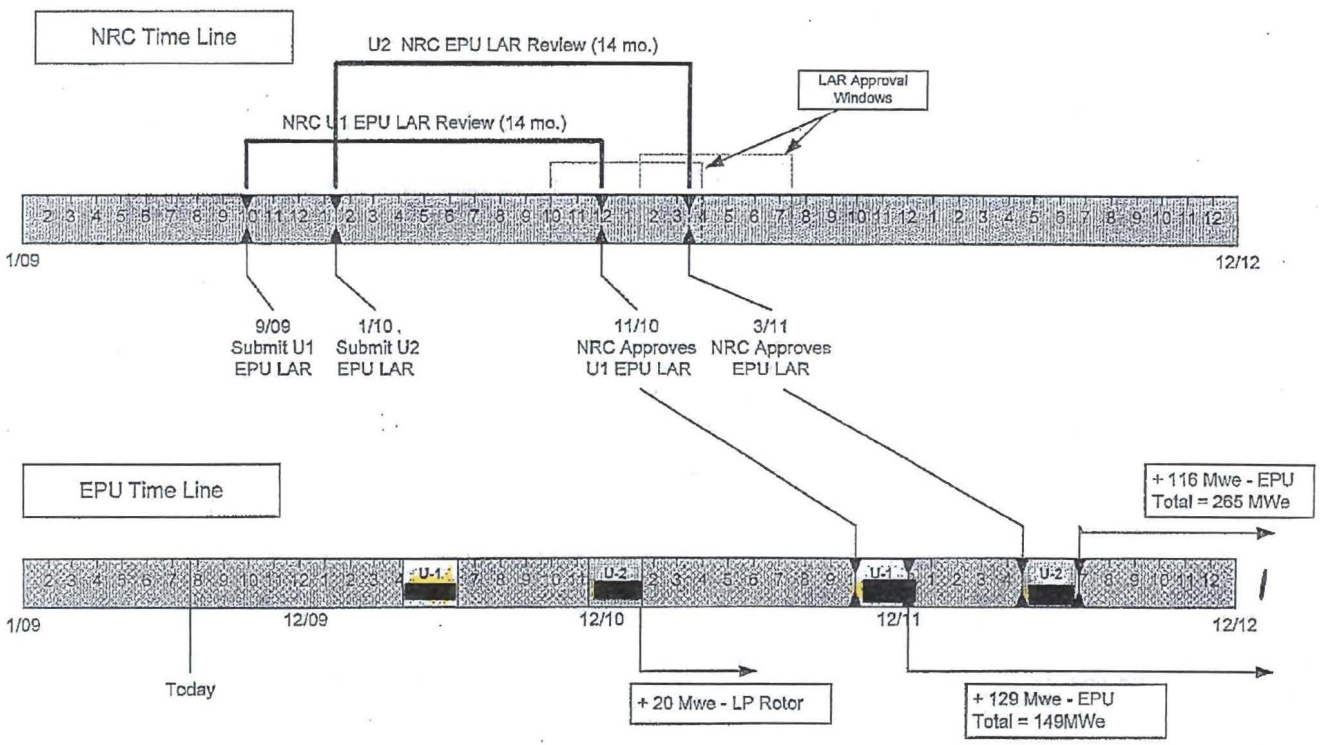
I. Overview

St. Lucie Timeline



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Overview – St. Lucie

Cost Overview

	ORIGINAL ESTIMATE	CURRENT FORECAST	VARIANCE	ACTUAL/ ACCRUALS	AMOUNT TO GO
LAR	$45,487,000	$72,593,139	($27,106,139)	$40,367,341	$32,225,798
ENGINEERING	$18,678,000	$36,206,073	($17,528,073)	$7,756,071	$28,450,002
MATERIALS	$220,855,900	$255,103,129	($34,247,229)	$43,080,988	$212,022,141
IMPLEMENTATION	$119,714,200	$360,383,433	($240,669,233)	$20,848,457	$339,534,976
SCOPE UNDEFINED / RISK ITEMS	$182,130,797	$60,031,616	$122,099,181		$60,031,616
ESCALATION	$69,524,707	$11,640,000	$57,884,707		$11,640,000
TOTAL	$656,390,604	$795,957,390	($139,566,786)	$112,052,857	$683,904,533

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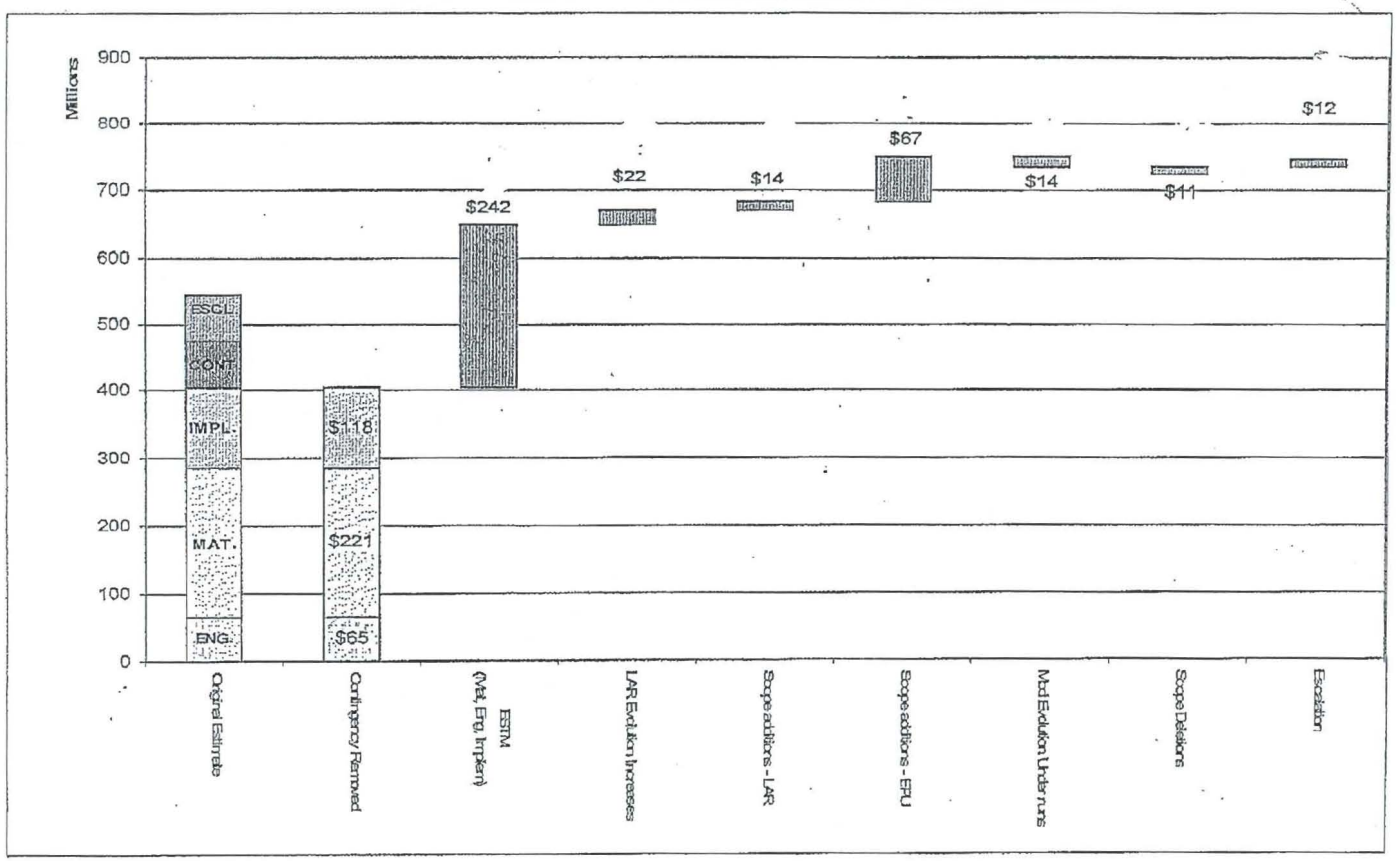
I. Overview

Forecast Overview Walk-Thru

Identifies changes from original budget to current forecast



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II. Area Summary and Overview

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II. Area Summary

Current Budget of $656M increased to $736M (Current Forecast)

- **The causes is primarily due to the budget being based on feasibility study / estimates not detailed engineering and project planning:**
  - LAR and initial design evaluations identified additional scope not addressed in Feasibility Study.
  - Bechtel Field Non-manual (FNM) costs for the EPC contract are higher than originally expected.
  - Material costs have increased for large components such as pumps and large valves
  - Capacity of the plant and other support organizations to absorb additional work was under estimated
  - Allowance for new scope was underestimated
  - Base scope contract cost were higher than estimated

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II. Area Summary

Licensing Costs

- **Licensing costs increased by $27M due to higher than budgeted base scope major contract costs**
  - WEC
  - Shaw
  - Areva

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II. Line by Line - LAR

Base Scope costs were higher than expected

DESCRIPTION	ORIGINAL	CURRENT	VARIANCE	EXPLANATION OF SIGNIFICANT VARIANCE
NSSS Analysis and Engineering				
Westinghouse Unit 2 Fuels, NSSS	$25,157,000	[redacted]	[redacted]	Base Scope
Areva Unit 1 Fuels, Unit 2 RSGs, Rx Heads				Base Scope (original budget for RSGs shown)
B&W Canada RSGs	$500,000			Base Scope
Areva Unit 2 RSGs	$200,000			Included in Areva scope above
Contract Incentives				Base Scope
RAI Support				Base Scope
PRA Analysis	$350,000			ACRS now requires showing EPU is risk beneficial
Areva Add'l Sensitivity Runs–SBLOCA, SDBS, SBO, LBLOCA, SGTR				Additional analysis to achieve acceptable results
Containment Spray Flow Reanalysis–LBLOCA				Emergent technical issue from CBDIs
Post-LOCA LTC add'l analysis				Initial results were unacceptable
New P-T Curves				Saves extensive additional effort in 2 - 3 years to reanalyze and license new P-T curves
Mid Process Scope Review Changes				#6 FWH replacement scope deletion
Additional Analyses				Reduced HPSI flow for SBLOCA, additional analyses from review cycle, pzr nozzle loads
SUBTOTAL	$26,207,000	$41,931,385	-$15,724,385	
BOP Analysis and Engineering				
Shaw BOP Analyses	$7,350,000	[redacted]	[redacted]	Base Scope
ETAP Analysis	$400,000			Base Scope--included in BOP analysis
Contract Incentives				Base Scope
RAI Support				Base Scope
Separate reports for PSL1 and PSL2 LARs				Separating PSL1 and 2 LAR schedules forced issuing certain deliverables twice, once for each unit to reflect each unit's analysis
Piping Vibration Analysis				High displacements at PSL atypical
PORV Piping Analysis				Analysis reconstitution required
Rx Vessel Supports Increased Temps				Temps exceeded existing values analyzed
High Containment Spray Flow				Emergent technical issue from CBDIs
Mid Process Scope Review Changes				#5 FWH replacement scope deletion
Additional Analyses				Additional analyses from review cycle
SUBTOTAL	$7,750,000	$13,269,355	-$5,519,355	

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II. Line by Line - LAR

DESCRIPTION	ORIGINAL	CURRENT	VARIANCE	EXPLANATION OF SIGNIFICANT VARIANCE
Grid Stability Risk Study	$250,000	$0	$250,000	
Other Contracts				
Third Party Reviews/Owner Support	$222,000	[redacted]	[redacted]	Review vendor outputs, generate CLBs, LR sections
				Base Scope–Update AST analyses for EPU
Radiological Analyses				Base Scope
Spent Fuel Criticality Analysis				Base Scope
Other Analyses Update				Compile LAR in E-form for submittal
Integrated LAR Compilation				Owners support and radiological
Additional Analyses				
Other RAI Support				
SUBTOTAL	$222,000	$3,460,795	-$3,238,795	
NRC Review Fees	$3,000,000	[redacted]	[redacted]	2 EPU independent LARs, recent EPUs 10,000 hours, TRACE model confirmatory analysis
	[redacted]			Environmental permitting analysis
Licensing and Environmental				
SUBTOTAL	$4,480,000	$4,158,604	$321,396	
LAR Internal Staffing	$6,578,000	[redacted]	[redacted]	Owners Functions–Additional effort for 2 EPU LARs
Total	$45,487,000	$72,593,139	-$27,106,139	

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II. Area Summary

Engineering Costs

- **Modification Engineering costs increased by $18M primarily due to new scope additions and existing design issues.**
  - -- Detailed LAR evaluations identified additional scope and existing design issues not addressed in Feasibility Studies.
  - -- New scope items identified in the Shaw Scoping Study and evolution of the LAR.
  - -- Lack of margin in secondary systems, structures, and components
  - -- Addition of EPC contractor necessitates additional EPU BOP Vendor (Shaw) interface
  - -- EPC vendor used for PC/M development

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II. Line by Line - Engineering

Modification Engineering costs increase primarily due to new scope additions and existing design issues.

ENGINEERING (EXCLUSIVE OF LAR)				EXPLANATION / NOTES
DESCRIPTION	ORIGINAL	CURRENT	VARIANCE	
OVER-RUNS				
ALLOWANCE FOR MSR REPAIR / REPLACEMENT	$ 1,300,000	$ [redacted]		MSR's are larger than existing, additional impacts to structures and systems, includes Bechtel Engineering costs.
HP / LP / GENERATOR TOTAL	$ 2,220,000	$		Bechtel Engineering costs for design package.
REPLACE 2 HP FW HTRS - # 5	$ 345,000	$		Heaters are larger than existing, additional impacts to structures and systems, *Includes FAC pipe replacement*, Bechtel pre-outage ramp value excessive, includes Bechtel Engineering costs.
PROJECT SUPPORT - FPL HOME OFFICE	$ 1,482,000	$		Required support for original scope and additional scope underestimated. 1 FTE's, estimated, 3 FTE's forecasted.
MODIFY ISOLATED PHASE BUS DUCT COOLING SYSTEM	$ 200,000	$		Component inspections identified additional scope from linkage and bus damage, also due to increased temperatures at EPU conditions an auto transfer feature is now required. Includes Bechtel Engineering costs.
PROJECT SUPPORT - 28 FPL/ CONTRACTORS	$ 4,075,500	$		Required support for original scope and additional scope underestimated. 11 FTE's estimated, 15 FTE's forecasted.
REPLACE TRANSFORMERS	$ 350,000	$		Revised scope from replacing 4 transformers to replace 2, upgrade coolers, and swap spare, includes Bechtel Engineering costs.
CONDENSER MODIFICATIONS	$ 100,000	$		Combined all other Condenser modifications, increased scope based on vendor recommendations for tube staking and air removal piping modifications, includes Bechtel Engineering costs.
FEED PUMP MODIFICATION	$ 500,000	$		Revised scope from refurbish existing pumps to replace with new, includes Bechtel Engineering costs.
UPGRADE CONDENSATE PUMPS	$ 100,000	$		Revised scope from refurbish existing pump rotating assemblies to replace with new, includes Bechtel Engineering costs.
CONTROL ROOM AC MARGIN ISSUE - PSL2 ONLY	$ 400,000	$		Original estimate was not sufficient for safety related installation and missile protection requirements, includes Bechtel Engineering costs.
REPLACE #2 HEATER DRAIN CONTROL VALVE	$ 180,000	$		Increase in scope from 2 to 10 valve replacements, includes Bechtel Engineering costs.
FW REGULATING VALVE (FRV) REPLACEMENT	$ 120,000	$		*Revised scope from refurbish existing valves* to cut out and replace with new valves and actuators, includes Bechtel Engineering costs.
MSIV ACTUATOR REPLACEMENT	$ 125,000	$		Revised scope from refurbish existing actuators to replace with new actuators, includes Bechtel Engineering costs.
UPDATE CHECKWORK FOR FAC	$ 100,000	$		Minor
TOTAL			($12,727,894)	
UNDER-RUNS				
MISC MATERIALS AND SERVICES	$ 1,150,000	$		Allocated to other mods
ELEC BUS SYSTEM MARGIN IMPROVEMENT	$ 820,000	$		Minor
COMMUNITY OUTREACH	$ 370,000	$		Allocated to other mods
BOP INST. & CTRL SETPOINT, RESCALING, & HOWR CHNGS	$ 450,000	$		
CONTROL ROOM HABITABILITY UPGRADES	$ 645,000	$		Bechtel Engineering costs.
GE COMPUTER REPLACEMENT	$ 800,000	$		Material costs less than estimated based on PTN bids for similar scope, includes Bechtel Engineering costs.
UPDATE EQ QUALIFICATION DOC PACKAGES	$ 250,000	$		Allocated to other mods
CONDENSER MODS - MATERIAL CONDITION	$ 200,000	$		Scope moved to Condenser Upgrade Modification
IMPLEMENT LEFM CHECK PLUS MUR	$ 500,000	$		Implementation costs were underestimated based on Shaw scoping study, includes Bechtel Engineering costs.
SIMULATOR UPGRADE	$ 50,000	$		Minor
TOTAL			$3,647,288	

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II. Line by Line - Engineering

ENGINEERING (EXCLUSIVE OF LAR)					
DESCRIPTION	ORIGINAL	CURRENT	VARIANCE		EXPLANATION / NOTES
SCOPE INCREASES					
SHAW	$ -	$ [redacted]	[redacted]		Additional support and analysis, bid specifications and design interface with EPC vendor
TCW HEAT EXCHANGERS	$ -	$			New scope not in feasibility evaluation - identified in Shaw scoping study
INCREASE STEAM BYPASS FLOW TO CONDENSER - PSL1	$ -	$			New scope - LAR
HEATER DRAIN / MSR SYSTEM DIGITAL CONTROLS	$ -	$			New mod resulting from elimination of Feedwater Heater Digital controls.
IMPROVE HOT LEG INJ FLOW	$ -	$			New scope - LAR
HEATER DRAIN PUMPS REPLACEMENT & SPARE	$ -	$			New scope resulting from Shaw BOP hydraulic modeling.
TURBINE GANTRY CRANE	$ -	$			New scope - Reliability and margin improvement
STRENGTHEN PARTITION PLATES 4A & 4B FW HEATERS	$ -	$			New scope - LAR
RESIZE MSR FLOW ORIFICES	$ -	$			New scope resulting from Shaw BOP hydraulic modeling.
TOTAL				($10,040,638)	
SCOPE DELETIONS					
ADD FW HEATER LEVEL DIGITAL CONTROLS	$ 1,020,500	$ [redacted]	[redacted]		Modification not required for EPU after Engineering review
REWIND CONDENSATE PUMP MOTORS FOR 6.9 KV	$ 300,000	$			Modification not required for EPU after Engineering review
DEH CONSTANT PRESSURE PUMPS	$ 200,000	$			Modification not required for EPU after Engineering review
MAIN STEAM SAFETY VALVE ORIFICE CHANGE	$ 100,000	$			Modification not required for EPU after Engineering review
CIRCULATING WATER PUMP REFURBISHMENT	$ 100,000	$			Modification not required for EPU after Engineering review
MAIN STEAM SAFETY VALVES / PIPING MODIFICATIONS	$ 125,000	$			Modification not required for EPU after Engineering review
TOTAL				$1,693,271	
GRAND TOTAL					
				($17,528,073)	

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II. Scope Reductions

Scope Reductions

Item	Description	Pro	Con	Risk
1	Circulating Water Pump Refurbishments – refurb pumps to original design condition	Re-establishes original baseline of pumps and improves reliability	Risk for down-powering Units in summer months. Cannot be justified for EPU	Med
2	Condensate Suction Piping U2 – increase pipe size	Eliminates source of oxygen (strainers) and reduces pipe flow velocities	Does not address pump vibration issues	Med
3	Add Dedicated power Supply for 1C/2C Condensate Pumps – replace exist 1C/2C 4.16 kV motors, install 6.9kV Switchgear cubicle and remove transfer switch	Eliminates existing OPS burden with transfer switch	Auto-swap very expensive and cannot be justified for EPU	Low
4	Replace DEH Constant Pressure Pumps – Replace exist centrifugal pumps with constant pressure	Eliminates obsolete unloading pressure regulators and tubing fatigue issues	Cannot be justified for EPU	Low
5	Feedwater heater digital controls	Improves reliability	Does not eliminate obsolescence issues	Low
6	Main Steam Safety Valve/ Tailpipe Mods	Not required after engineering review	N/A	None
7	Main Steam Safety Valve Orifice Change –	Not required after engineering review	N/A	None
8	Main Steam ADV Trim Change out -	Not required after engineering review	N/A	None
9	Exciter Upgrade / rewind	Not required after Siemens review	None	None

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II. Scope Additions

Scope Additions

Item	Description	Requirement	Risk of not doing	Total
1	Replace TCW Heat Exchangers - Shaw Study	Increased Turbine Generator Heat Loads at EPU Conditions	Existing heat exchangers have no margin for current plant conditions. Downpowers during summer months	$
2	Rod Control Upgrade - Margin	Reliability	Decreased Reliability	$
3	Replace Heater Drain Pumps & Spare - Replace Pump Internals using existing cans and motors - Shaw Study	Need greater flow and NPSH for EPU conditions Original analysis targeted Condensate Pump replacement, but hydraulic model pinpointed Heater Drain pumps	Invalidate EPU Hydraulic Model, jeopardize achieving planned uprate	$
4	Heater Drain/MSR Digital Controls – Replace current pneumatic level controls with digital	Existing pneumatic level controls are obsolete, time consuming to install and difficult to calibrate. Level controls small bore piping must be reworked as part of heat exchanger replacement.	Inability to reinstall and return to working status could delay the outage. Level control failures could result in a plant trip.	$
5	Turbine Gantry Crane - Margin	Gantry Crane parts are obsolete and existing cranes are unreliable to support EPU lift schedule	Outage delays	$
6	Improve Hotleg Injection Flow – Increase flow capability w/ full bore valve or pipe size increase - LAR	Hot leg injection flow requirements to address boron precipitation increase for EPU. Flow path cannot achieve flow. NRC Regulatory requirements.	Invalidate EPU boron precipitation calculation, jeopardize achieving planned uprate. Not in compliance with NRC regulatory requirements	$
7	Shaw Modification Support	Provide package input to EPC contractor as required to support EPU	EPC contractor will not have adequate basis for modifications	$
8	Increase Steam Bypass Flow to Condenser U1 - LAR	Plant trip cannot be accomplished without lifting the MSSV's. Increased capacity and improved opening time will resolve this problem.	MSSV's will lift on a plant trip.	$
9	Strengthen Pass Partition Plates 4A/B FW Heaters - LAR	Partition plate maximum allowable dP is exceeded with 2% tube plugging at EPU conditions. One #4 FWH has 2% tubes plugged. Modification will allow #4 FWH's to accommodate 10% tube plugging similar to all other heaters.	Partition plate failure.	$
10	Spare FW Pump - Shaw Study	To retain Capital Spares stock, a spare FW Pp comparable to the new pumps is required	A current capital spare to replace the existing would not be realized	$
11	Increase MSR/HP Exhaust Relief Capacity – Increase relief valve size based on input from Turbine Supplier (Siemens) - Margin	EPU steam flows increase by ~12%. Relief valve capacity increase required to protect MSR/LP equipment from overpressure.	Invalidate EPU steam relief requirements, jeopardize achieving planned uprate	$

II. Area Summary

Material Costs

- Material costs increased from [redacted] to [redacted] primarily due to Turbine / Generator cost. Increases from project scope estimate to contract establishment.
- Transformer and pump material costs escalate at greater than assumed rates
- Added scope for LAR and Design analysis has also caused increased material cost for the added items

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II. Line by Line - Material

Material costs increased from $221M to $255M primarily due to Turbine / Generator cost.

MATERIAL					
DESCRIPTION	ORIGINAL	CURRENT	VARIANCE		EXPLANATION / NOTES
OVER-RUNS					
HP / LP / GENERATOR TOTAL	$ 141,100,000	$ [redacted]	[redacted]		Siemens labor included in material contract
FEED PUMP MODIFICATION	$ 4,150,000	$			Added costs for Spare Feed Pump
REPLACE 2 HP FW HTRS - 6,5	$ 6,000,000	$			Actual PO values slightly higher tan estimate, added FAC piping
UPGRADE CONDENSATE PUMPS	$ 671,000	$			Scope change from rebuild to new rotating assemblies
MODIFY ISOLATED PHASE BUS DUCT COOLING SYSTEM	$ 450,000	$			Actual PO values higher than estimated
MSIV ACTUATOR REPLACEMENT	$ 50,000	$			Scope change from rebuild to new actuators
CONTROL ROOM HABITABILITY UPGRADES	$ 300,000	$			Original estimate based on GAR Estimate developed in 2005
REPLACE #2 HEATER DRAIN CONTROL VALVE	$ 66,000	$			Minor
CONDENSER MODIFICATIONS	$ 900,000	$			
TOTAL				($35,583,887)	
UNDER-RUNS					
REPLACE TRANSFORMERS	$ 24,000,000	$ [redacted]	[redacted]		Scope changed from replace 4 to replace 2 & upgrade 2
DEH COMPUTER REPLACEMENT	$ 5,000,000	$			Values obtained from PTN bid proposals
ALLOWANCE FOR MSR REPAIR / REPLACEMENT	$ 24,000,000	$			PO value slightly lower than estimate
IMPLEMENT LEFM CHECK PLUS MUR	$ 4,800,000	$			PO value slightly lower than estimate
CONDENSER MODS - MATERIAL CONDITION	$ 800,000	$			Scope moved to Condenser Upgrade Modification
ELEC BUS SYSTEM MARGIN IMPROVEMENT	$ 510,000	$			Minor
SIMULATOR UPGRADE	$ 500,000	$			Minor
FW REGULATING VALVE (FRV) REPLACEMENT	$ 660,000	$			Minor
BOP INST. & CNTRL SETPOINT, RESCALING&HDWR CHNGS	$ 605,000	$			Minor
CONTROL ROOM AC MARGIN ISSUE - PSL2 ONLY	$ 1,140,000	$			Minor
TOTAL				$8,833,179	
SCOPE INCREASES					
TCW HEAT EXCHANGERS	$ -	$ [redacted]	[redacted]		New scope not in feasibility evaluation - identified in Shaw scoping study
HEATER DRAIN PUMPS REPLACEMENT & SPARE	$ -	$			New scope resulting from Shaw BOP hydrolic modling.
HEATER DRAIN / MSR SYSTEM DIGITAL CONTROLS	$ -	$			New mod resulting from elimination of Feedwater Heater Digital controls.
INCREASE STEAM BYPASS FLOW TO CONDENSER - PSL1	$ -	$			New scope - LAR
IMPROVE HOT LEG INJ FLOW	$ -	$			New scope - LAR
RESIZE MSR FLOW ORIFICES	$ -	$			New scope - LAR
TOTAL				($10,223,102)	
SCOPE DELETIONS					
MAIN STEAM SAFETY VALVE ORIFICE CHANGE - DELETED	$ 1,087,100	$ [redacted]	[redacted]		Modification not required for EPU after Engineering review
REWIND CONDENSATE PUMP MOTORS FOR 6.9 KV	$ 600,000	$			Modification not required for EPU after Engineering review
CIRCULATING WATER PUMP REFURBISHMENT	$ 2,700,000	$			Modification not required for EPU after Engineering review
ADD FW HEATER LEVEL DIGITAL CONTROLS	$ 383,000	$			Modification not required for EPU after Engineering review
DEH CONSTANT PRESSURE PUMPS - DELETED	$ 300,000	$			Modification not required for EPU after Engineering review
MAIN STEAM SAFETY VALVES / PIPING MODIFICATIONS - DEL	$ 103,800	$			Modification not required for EPU after Engineering review
TOTAL				$2,826,651	
GRAND TOTAL				($34,247,228)	

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III. Implementation

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III. Implementation

Project Implementation

- **Original Project Organization structure envisioned minimal staffing supplemented with competent suppliers**
  - Original Structure
    - Self Perform model (FPL + Contractors) using NAP 401
    - Fast track for large component purchase with licensing and design in parallel
  - Project Organization structure changed following performance issues with Point Beach Fall 2008 Outage
    - Abandon Self Perform model and use Engineer-Procure-Construct (EPC) ideology
    - EPC structure targeted A/E with ability to proceed independently (Bechtel)
    - EPU Balance of Plant Vendor (Shaw) services still required for overall EPU assessment

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III. Implementation

Summary of all Implementation Costs

Cost Center	Original Budget	Forecast at Completion	Vs. Current Budget	To Go
Implementation	119,714,200	360,383,433	(240,669,233)	339,534,976
EPC Construction	[redacted]	[redacted]	[redacted]	[redacted]
Plant Support				
FPL Project Management				
Siemens Labor				
Rod Control				
Outage Extension				
Turbine Gantry Crane				
FPL Juno PM/Eng Support				
Capital, Non-Recoverable				
Scope Growth Allowance				
	1	2	3	4

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III. Implementation

Implementation Costs

- **Implementation costs increased from $120M to $360M.**
  - --Initial budget / Feasibility Estimate was based on conceptual scoping
  - --Scope additions contributed to the cost increase above the original budget. Examples of scope adds are Rod Control, TCW Heat Exchanger, and Turbine Gantry Crane upgrades.
  - --Implementation model changed from FPL self-perform to EPC
  - --Plant and other owner support was not fully recognized in Feasibility Study.

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III. Implementation - Line by Line

Original implementation estimates on limited field information / conditions. Costs for EPC contractor are higher than expected

HP / LP / GENERATOR TOTAL	$ 44,100,000	$ [redacted]	[redacted]		Primary contributer is implementation costs.*(Bechtel & Siemens)*
PLANT SUPPORT	$ -	$			Project Services not included in base. Includes Plant and plant craft support, Start-up services, Security, work controls, QA/QC, Construction craft from supplemental labor contract, offices and facilities maintenance.
PROJECT SUPPORT - 28 FPL/ CONTRACTORS	$ 19,094,400	$			Required support for original scope and additional scope underestimated 28 FTE's. Currently at 52 FTE's are required to manage LAR submittals, major procurements and multiple outage construction modifications. Approximately 3,000,000 manhours to implement this project, 5% total project.
REPLACE 2 HP FW HTRS - # 6	$ 1,650,000	$			Heaters are larger than existing, additional impacts to structures and systems, includes FAC pipe replacement, Bechtel pre-outage ramp value excessive, includes Bechtel implementation costs.
OUTAGE EXTENSION COSTS	$ 18,000,000	$			Original estimate used $150K per day, forecast based on $200K per day. Forecast will be adjusted based on final values from Business Operations and outage optimization determination
CONDENSER MODIFICATIONS	$ 800,000	$			Combined all other Condenser modifications, increased scope based on vendor recommendations for tube staking and air removal piping modifications, includes Bechtel implementation costs.
ALLOWANCE FOR MSR REPAIR / REPLACEMENT	$ 6,660,000	$			MSR's are larger than existing, additional impacts to structures and systems, includes Bechtel implementation costs.
CONTROL ROOM AC MARGIN ISSUE - PSL2 ONLY	$ 2,300,000	$			Original estimate was not sufficient for safety related installation and missile protection requirements, includes Bechtel implementation costs.
MODIFY ISOLATED PHASE BUS DUCT COOLING SYSTEM	$ 390,000	$			Component inspections identified additional scope from linkage and bus damage, also due to increased temperatures at EPU conditions an auto transfer feature is now *required*. Includes Bechtel implementation costs.
PROJECT SUPPORT - 5 FPL HOME OFFICE	$ 1,976,000	$			Required support for original scope and additional scope underestimated 5 FTE's. 1% total project.
FEED PUMP MODIFICATION	$ 1,200,000	$			Revised scope from refurbish existing pumps to replace with new, includes Bechtel implementation costs.
BOP INST. & CNTRL SETPOINT, RESCALING&HDWR CHNGS	$ 210,000	$			Based on clarification of scope as design evolves.
OFFICE TRAILER PARK / EQUIPMENT / CAPITAL PURCHASE	$ 30,000	$			Original estimate was not sufficient for rental of outside facility large enough to house the EPU project team and Bechtel, for 2 years and inclusion of Jupiter West facility.
REPLACE #2 HEATER DRAIN CONTROL VALVE	$ 150,300	$			Increase in scope from 2 to 10 valve replacements, includes Bechtel implementation costs.
IMPLEMENT LEFM CHECK PLUS MUR	$ 1,500,000	$			Implementation costs were under estimated based on Shaw scoping study, includes Bechtel implementation costs.
PROJECT RELATED O&M	$ -	$			Allowance for O&M related accounting treatment
FW REGULATING VALVE (FRV) REPLACEMENT	$ 340,000	$			Revised scope from refurbish existing valves to cut out and replace with new valves and actuators, includes Bechtel implementation costs.
REPLACE TRANSFORMERS	$ 4,368,000	$			Revised scope from replacing 4 transformers to replace 2, upgrade coolers, and swap spare, includes Bechtel implementation costs.
CONTROL ROOM HABITABILITY UPGRADES	$ 326,000	$			Bechtel implementation costs.
ELEC BUS SYSTEM MARGIN IMPROVEMENT	$ 560,000	$			Bechtel implementation costs.
UPGRADE CONDENSATE PUMPS	$ 887,000	$			Revised scope from refurbish existing pump rotating assemblies to replace with new, includes Bechtel implementation costs.
SIMULATOR UPGRADE	$ 300,000	$			Bechtel implementation costs.
MSIV ACTUATOR REPLACEMENT	$ 50,000	$			Revised scope from refurbish existing actuators to replace with new actuators, includes Bechtel implementation costs.
TOTAL	-			($193,810,171)	
UNDER-RUNS					
ALLOWANCE FOR SCOPE	$ 4,000,000	[redacted]			Allocated to other mods

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III. Implementation - Line by line

CONSTRUCTION / IMPLEMENTATION					
DESCRIPTION	ORIGINAL	CURRENT	VARIANCE		EXPLANATION / NOTES
UNDER-RUNS					
ALLOWANCE FOR SCOPE	$ 5,000,000	[redacted]	[redacted]		Allocated to other mods
CONDENSER MODS - MATERIAL CONDITION	$ 2,500,000				Scope moved to Condenser Upgrade Modification
DEH COMPUTER REPLACEMENT	$ 2,000,000				Material costs less than estimated based on PTN bids for simular scope, includes Bechtel implementation costs.
MISC MATERIALS AND SERVICES	$ 200,000				Allocated to other mods
TOTAL				$8,084,689	
SCOPE INCREASES					
ROD CONTROL UPGRADE	$ -	[redacted]	[redacted]		New scope - Reliability and margin improvement
TCW HEAT EXCHANGERS	$ -				New scope not in feasibility evaluation - Identified in Shaw scoping study
TURBINE GANTRY CRANE	$ -				New scope - Reliability and margin improvement
HEATER DRAIN / MSR SYSTEM DIGITAL CONTROLS	$ -				New mod resulting from elimination of Feedwater Heater Digital controls.
IMPROVE HOT LEG INJ FLOW	$ -				New scope - LAR
HEATER DRAIN PUMPS REPLACEMENT & SPARE	$ -				New scope resulting from Shaw BOP hydrolic modling.
INCREASE STEAM BYPASS FLOW TO CONDENSER - PSL1	$ -				New scope - LAR
STRENGTHEN PARTITION PLATES 4A & 4B FW HEATERS	$ -				New scope - LAR
RESIZE MSR FLOW ORIFICES	$ -				New scope resulting from Shaw BOP hydrolic modling.
INCREASE MSR / HP EXHAUST RELIEF CAPACITY	$ -				New scope resulting from Shaw BOP hydrolic modling.
TOTAL				($80,087,251)	
SCOPE DELETIONS					
ADD FW HEATER LEVEL DIGITAL CONTROLS	$ 2,200,000	[redacted]	[redacted]		Modification not required for EPU after Engineering review
REWIND CONDENSATE PUMP MOTORS FOR 6.9 KV	$ 750,000				Modification not required for EPU after Engineering review
MAIN STEAM SAFETY VALVE ORIFACE CHANGE	$ 730,500				Modification not required for EPU after Engineering review
CIRCULATING WATER PUMP REFURBISHMENT	$ 600,000				Modification not required for EPU after Engineering review
MAIN STEAM SAFETY VALVES / PIPING MODIFICATIONS	$ 543,000				Modification not required for EPU after Engineering review
DEH CONSTANT PRESSURE PUMPS	$ 300,000				Modification not required for EPU after Engineering review
TOTAL				$5,123,500	
GRAND TOTAL				($240,669,233)	

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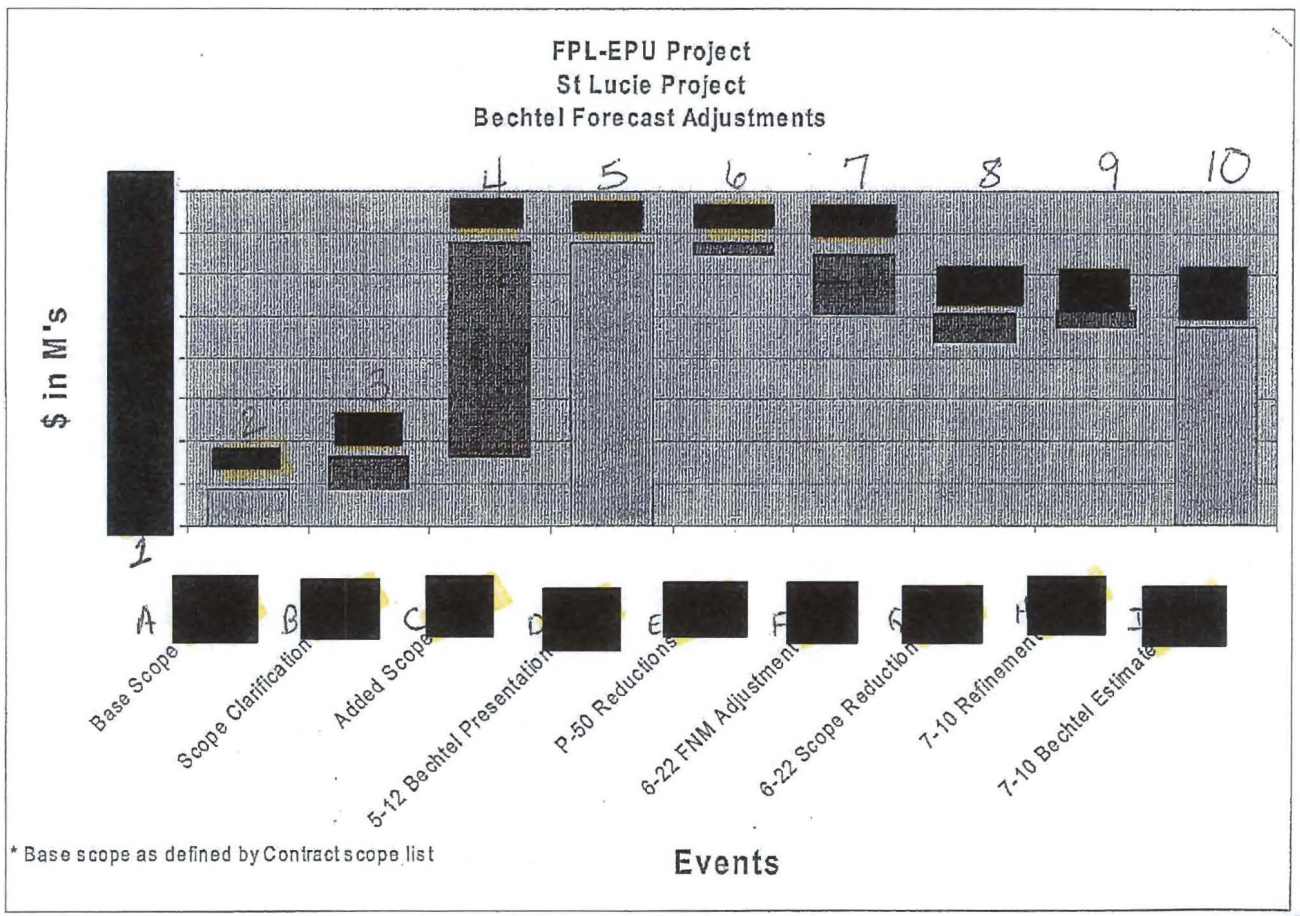
III. Implementation

Bechtel Proposal Estimate Changes



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III. Implementation

Change Walk- Thru

BECHTEL FORECAST TIMELINE

MONTH	EVENT	NUMBER OF MODS	FORECAST FPL (E) - BECHTEL (B)	NOTES
May-09	BECHTEL PROVIDED INDICATIVE VALUES AS PART OF TOTAL PROJECT FORECAST	19	[redacted]	BASED UPON ORIGINAL BECHTEL "INDICATIVE STAFFING PLANS" Based on 19 EPC Modifications
May-09	INITIAL BECHTEL TOTAL PROJECT FORECAST	49		BECHTEL SUBMIT INITIAL TOTAL PROJECT ESTIMATE 49 Modifications with Bechtel involvement (Based on [redacted] cope Growth and [redacted] Clarification) 1 34 Mods 19 Original EPC Modifications Plus 15 New modifications added to Spec M-157 15 New Items 5 MSP's, 4 new mods, 5 LAR Modifications and 1 support other vendors.
June-09	P-50 REV.0 ESTIMATE	49		P-50 ESTIMATE BASED ON PARAMETERS PROVIDED BY FPL 49 Modifications with Bechtel involvement [redacted] 2 34 Mods 19 Original EPC Modifications Plus 15 New modifications added to Spec M-157 15 New Items 5 MSP's, 4 new mods, 5 LAR Modifications and 1 Support other vendors.
June-09	P-50 REV.1 ESTIMATE	49		REDUCED CONTINGENCY IN FIELD NON-MANUAL STAFFING [redacted] 3
June-09	P-50 REV.2 ESTIMATE	40		SCOPE REDUCTIONS 40 Modifications with Bechtel involvement [redacted] 4 9 Deleted scope
July-09	P-50 REV.3 ESTIMATE	40		SCOPE REFINEMENT 40 Modifications with Bechtel involvement [redacted] 5 9 Deleted scope Based on scope refinement and Gap analysis

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III. Line by Line – Total

This table represents the total variance between the original budget and the current forecast. Further breakdown for LAR, engineering, materials and implementation appear in other slides.

TOTAL					
DESCRIPTION	ORIGINAL	CURRENT	VARIANCE		EXPLANATION / NOTES
OVER-RUNS					
HP / LP / GENERATOR TOTAL	$ 187,420,000	$ [redacted]	[redacted]		Primary contributor is implementation costs (Bechtel and Siemens)
PLANT SUPPORT	$ -	$			Project Services not included in base. Includes Plant and plant craft support, Start-up services, Security, work controls, QA/QC, Construction craft from supplemental labor contract, offices and facilities maintenance.
LAR	$ 45,487,000	$			See Detailed LAR Analysis
PROJECT SUPPORT - 28 FPL/ CONTRACTORS	$ 22,149,400	$			Required support for original scope and additional scope underestimated 28 FTE's. Currently at 52 FTE's are required to manage LAR submittals, major procurements and multiple outage construction modifications. Approximately 3,000,000 man-hours to implement this project. 5% total project.
REPLACE 2 HP FW HTRS - # 5	$ 7,995,000	$			Heaters are larger than existing, additional impacts to structures and systems, includes FAC pipe replacement, Bechtel pre-outage ramp value excessive, includes Bechtel implementation costs.
OUTAGE EXTENSION COSTS	$ 18,000,000	$			Original estimate used $150K per day, forecast based on $200K per day. Forecast will be adjusted based on final values from Business Operations and outage optimization determination
ALLOWANCE FOR MSR REPAIR / REPLACEMENT	$ 31,960,000	$			MSR's are larger than existing, additional impacts to structures and systems, includes Bechtel implementation costs.
CONDENSER MODIFICATIONS	$ 1,800,000	$			Combined all other Condenser modifications, increased scope based on vendor recommendations for tube staking and air removal piping modifications, includes Bechtel implementation costs.
CONTROL ROOM AC MARGIN ISSUE - PSL2 ONLY	$ 3,840,000	$			Original estimate was not sufficient for safety related installation and missile protection requirements, includes Bechtel implementation costs.
MODIFY ISOLATED PHASE BUS DUCT COOLING SYSTEM	$ 1,040,000	$			Component inspections identified additional scope from linkage and bus damage, also due to increased temperatures at EPU conditions an auto transfer feature is now required, includes Bechtel implementation costs.
FEED PUMP MODIFICATION	$ 5,850,000	$			Revised scope from refurbish existing pumps to replace with new, includes Bechtel implementation costs.
PROJECT SUPPORT - HOME OFFICE	$ 3,458,000	$			Required support for original scope and additional scope underestimated 5 FTE's. 1% total project.
REPLACE #2 HEATER DRAIN CONTROL VALVE	$ 396,300	$			Increase in scope from 2 to 10 valve replacements, includes Bechtel implementation costs.
BOP INST. & CNTRL SETPOINT. RESCALING	$ 1,265,000	$			Based on clarification of scope as design evolves.
OFFICE TRAILER PARK / EQUIPMENT / CAPITAL PURCHASE	$ 210,000	$			Original estimate was not sufficient for rental of outside facility large enough to house the EPU project team and Bechtel, for 2 years and inclusion of Jupiter West facility.
UPGRADE CONDENSATE PUMPS	$ 1,658,000	$			Revised scope from refurbish existing pump rotating assemblies to replace with new, includes Bechtel implementation costs.
FW REGULATING VALVE (FRV) REPLACEMENT	$ 1,120,000	$			Revised scope from refurbish existing valves to cut out and replace with new valves and actuators, includes Bechtel implementation costs.
PROJECT RELATED O&M	$ -	$			Allowance for O&M related accounting treatment
CONTROL ROOM HABITABILITY UPGRADES	$ 1,270,000	$			Bechtel implementation costs.
MSIV ACTUATOR REPLACEMENT	$ 225,000	$			Revised scope from refurbish existing Actuators to replace with new actuators, includes Bechtel implementation costs.
IMPLEMENT LEFM CHECK PLUS MUR	$ 6,800,000	$			Implementation costs were underestimated based on Shaw scoping study, includes Bechtel implementation costs.
SIMULATOR UPGRADE	$ 850,000	$			Minor
ELEC BUS SYSTEM MARGIN IMPROVEMENT	$ 1,690,000	$			Minor
UPDATE CHECKWORK FOR FAC	$ 100,000	$			Minor
TOTAL		[redacted]	[redacted]	($264,096,533)	

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III. Line by Line - Total

TOTAL					
DESCRIPTION	ORIGINAL	CURRENT	VARIANCE		EXPLANATION / NOTES
UNDER-RUNS					
ALLOWANCE FOR SCOPE	$ 5,000,000	$ [redacted]	[redacted]		Allocated to other modifications
CONDENSER MODS - MATERIAL CONDITION	$ 3,500,000	$			Scope moved to Condenser Upgrade Modification
DEH COMPUTER REPLACEMENT	$ 7,800,000	$			Material costs less than estimated based on PTN bids for similar scope, includes Bechtel implementation costs.
REPLACE TRANSFORMERS	$ 28,438,000	$			Revised scope from replacing 4 transformers to replace 2, upgrade coolers, and swap spare, includes Bechtel implementation costs.
MISC MATERIALS AND SERVICES	$ 1,450,000	$			Allocated to other mods
COMMUNITY OUTREACH	$ 370,000	$			Allocated to other mods
UPDATE EQ QUALIFICATION DOC PACKAGES	$ 250,000	$			Allocated to other mods
TOTAL				$14,212,899	
SCOPE INCREASES					
TCW HEAT EXCHANGERS	$ -	$ [redacted]	[redacted]		New scope not in feasibility evaluation - identified in Shaw scoping study
ROD CONTROL UPGRADE	$ -	$			New scope - Reliability and margin improvement
HEATER DRAIN PUMPS REPLACEMENT & SPARE	$ -	$			New scope resulting from Shaw BOP hydraulic modeling.
HEATER DRAIN / MSR SYSTEM DIGITAL CONTROLS	$ -	$			New mod resulting from elimination of Feedwater Heater Digital controls.
TURBINE GANTRY CRANE	$ -	$			New scope - Reliability and margin improvement
IMPROVE HOT LEG INJ FLOW	$ -	$			New scope - LAR
SHAW NON LAR ENGINEERING	$ -	$			Additional support and analysis, bid specifications and design interface with EPC vendor
INCREASE STEAM BYPASS FLOW TO CONDENSER - PSL1	$ -	$			New scope - LAR
STRENGTHEN PARTITION PLATES 4A & 4B FW HEATERS	$ -	$			New scope - LAR
RESIZE MSR FLOW ORIFICES	$ -	$			New scope resulting from Shaw BOP hydraulic modeling.
INCREASE MSR / HP EXHAUST RELIEF CAPACITY	$ -	$			New scope resulting from Shaw BOP hydraulic modeling.
TOTAL				($80,330,991)	
SCOPE DELETIONS					
ADD FW HEATER LEVEL DIGITAL CONTROLS	$ 4,624,000	$ [redacted]	[redacted]		Modification not required for EPU after Engineering review
MAIN STEAM SAFETY VALVE ORIFACE CHANGE	$ 1,897,600	$			Modification not required for EPU after Engineering review
REWIND CONDENSATE PUMP MOTORS FOR 6.9 KV	$ 1,650,000	$			Modification not required for EPU after Engineering review
CIRCULATING WATER PUMP REFURBISHMENT	$ 3,400,000	$			Modification not required for EPU after Engineering review
DEH CONSTANT PRESSURE PUMPS	$ 600,000	$			Modification not required for EPU after Engineering review
MAIN STEAM SAFETY VALVES / PIPING MODIFICATIONS	$ 771,800	$			Modification not required for EPU after Engineering review
TOTAL				$10,663,952	
CONTINGENCY	$ 182,130,797	$			
ESCALATION	$ 69,524,707	$			
TOTAL				$251,655,504	
Unallocated Escalation	$ -	$	$	($11,640,000)	
GRAND TOTAL					
				($79,535,169)	

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III. Risk and Mitigation

	Orig'l Date	Risk Event Description	P/M/L	Impact Level	Type	Maximum Cost Exposure ($000)	Type of Estimate	Prob Level	Weighted Risk Exposure ($000)	Impact Description	Mitigation Action
1	4/3/09	Elimination of MSSVs lifting on a Plant Trip will require a significant modification to the Steam Dump system - or - reduction of T-cold		Significant	Design	[redacted]				U-1 Significant cost to modify the steam dump system or a reduction in MWe if Tcold is lowered	U-1: Plan to increase capacity of Steam dump and Bypass System, Reviewed and accepted by Plant Health Committee U-2: Perform K-T analysis and provide recommendations to Senior Management ready for internal challenge with Chief
2	4/30/09	U-1 PRA for Total Loss of Feedwater indicates PORVs are undersized for uprate condition		Significant	Schedule Cost					Cost and schedule could be impacted if PORVs need to be replaced	Working on alternative Solutions Will likely require mods other than PORV replacement Risk Mitigation Plan in development
3	7/19/09	Automate U1 Containment Mini-Purge – Replace manual isolation valves with automatic valves, controls and indication - LAR		Significant	C / S					Containment design pressure will be exceeded without a reduction in initial containment pressure. Lower operating containment pressure cannot be maintained without a mini-purge similar to Unit 2.	Engineering evaluation in progress, scope has not been identified
4	7/19/09	MSR Shell Drain Loop Seal Piping		Significant	C / S					Shaw modeling of system indicates steam entrainment in MSR drains causing high flow through line.	Data Collection, engineering evaluation in progress, scope has not been identified
5	7/19/09	Generator Stator Core Hot Spots		Significant	C / S						Engineering evaluation in progress, scope has not been identified
6	7/19/09	U1 PRA Modifications		Significant	C / S					EPU conditions challenge ability to achieve Once Through Cooling (OTC)	Engineering evaluation in progress, scope has not been identified
7	7/19/09	Main Steam, Feedwater, & Condensate Piping Support Modifications		Significant	C / S					Evaluate for EPU dynamic and increased thermal loads and implement recommended mods as necessary	Engineering evaluation in progress, scope has not been identified
8	7/19/09	Steam Bypass Control System Increase Flow to Condenser – U2		Significant	C / S					Plant trip cannot be accomplished without lifting the MSSV's.	Engineering evaluation in progress, scope has not been identified
9	7/19/09	Low Pressure Feedwater Heater Inspections/ Modifications		Significant	C / S					Yuba report for FWH review at EPU conditions identified numerous nozzle flow criteria exceeded at EPU conditions. Inspections will validate existing condition of the FWH's.	Engineering evaluation in progress, scope has not been identified
10	7/19/09	BOP Piping Vibration Modifications		Significant	C / S					Evaluate existing & expected EPU vibration to BOP piping and implement recommended mods as necessary	Engineering evaluation in progress, scope has not been identified
11	7/19/09	Evaluate U2 CVCS piping for voiding under NRC Generic Letter 2008-01		Significant	C / S					CVCS will be credited for EPU LOCA analyses. GL 2008-01 would then apply to the system.	Engineering evaluation in progress, scope has not been identified

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III. Risk and Mitigation

	Origin Date	Risk Event Description	T/M/E	Impact Level	Type	Maximum Cost Exposure ($000)	Type of Estimate	Prob Level	Weighted Risk Exposure ($000)	Impact Description	Mitigation Action
12	7/19/09	U1 Safety Injection Tank Design Pressure Increase Requalification		Significant	C / S	[redacted]				SBLOCA analysis will not meet design criteria without an increase in SIT pressure.	Engineering evaluation in progress, scope has not been identified
13	7/19/09	CCW Piping Analysis / Modifications (U2 Only)		Significant	C / S					Evaluate CCW for increased thermal loads and implement recommended mods as necessary	Engineering evaluation in progress, scope has not been identified
14	7/19/09	Additional Isophase Bus Duct Air Flow Test U1		Significant	C / S					Unit 1 and 2 isophase bus duct configurations are different. Test will ensure the replacement equipment is properly sized.	Engineering evaluation in progress, scope has not been identified
15	7/19/09	SG Calorimetric Transmitters		Significant	C / S					The calorimetric uncertainty calculations show that replacement of these transmitters is necessary or steam enthalpy uncertainty will become the dominant term in the calorimetric.	Engineering evaluation in progress, scope has not been identified
16	7/19/09	Westinghouse / AREVA / B&W - LAR		Significant	C / S					Potential of labor increases to support FPL through NRC review phase.	Continue to monitor contractor performance and perform any possible evaluations in-house (lower rates)
17	7/19/09	Shaw / SWEC - LAR		Significant	C / S					Potential of labor increases to support FPL through NRC review phase.	Continue to monitor contractor performance and perform any possible evaluations in-house (lower rates)
18	7/19/09	Third Party Reviews / Grid Stability - LAR		Significant	C / S					Potential of labor increases to support FPL through NRC review phase.	Continue to monitor contractor performance and perform any possible evaluations in-house (lower rates)
19	7/19/09	FPL Engineering - LAR		Significant	C / S					Additional personnel required to support NRC review.	Manage personnel and overtime.
20	7/19/09	Bechtel Engineering - Modifications		Significant	C / S					Additional personnel required to support scope growth.	Continue to monitor contractor performance and perform any possible engineering in-house (lower rates). FPL manage engineering or lump sum conversion.
21	7/19/09	Shaw / SWEC - Modifications		Significant	C / S					Additional personnel required to support scope growth.	Continue to monitor contractor performance and perform any possible engineering in-house (lower rates)
22	7/19/09	FPL Engineering - Modifications		Significant	C / S					Additional personnel required to support scope growth.	Manage personnel and overtime.
23	7/19/09	FPL Juno PM / Engineering Support - Modifications		Significant	C / S					Additional personnel required to support scope growth.	Manage personnel and overtime.
24	7/19/09	Bechtel Procured Materials		Significant	C / S					T&M contract for Bechtel	Continue to monitor purchasing program.
25	7/19/09	Bechtel Construction		Significant	C / S					Additional craft required to support extra work. Construction estimates supplied by Bechtel are Order of Magnitude at this time.	Continue to estimate "To-Go" scope in detail and resource load detail schedules. Lump sum conversion, possible (by Outage for example).
26	7/19/09	Plant Support		Significant	C / S					Additional scope is likely to add impact to plant.	Continue to estimate "To-Go" scope in detail and resource load detail schedules.
27	7/19/09	FPL Project Management		Significant	C / S					Additional personnel overtime required to control project.	Manage personnel and overtime.
28	7/19/09	Siemens Implementation Labor		Significant	C / S					No contracts have yet been signed.	Lock down lump sum contracts as soon as possible. Use any economies of scale possible.
29	7/19/09	Rod Control Modifications		Significant	C / S					Westinghouse study not yet final.	Review vendor study to optimize system modifications and reduce cost.
30	7/19/09	Turbine Gantry Crane Upgrade		Significant	C / S					Construction risk.	Control supplemental labor support and validate planning and implementation processes.

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III. Risk and Mitigation

	Origin Date	Risk Event Description	Risk Owner	Impact Level	Type	Maximum Cost Exposure ($000)	Type of Estimate	Prob Level	Weighted Risk Exposure ($000)	Impact Description	Mitigation Action
31	1/29/08	Available Containment Pressure Margin reduced due to the discovery of Legacy LOCA analysis error	M	Significant	Design	[redacted]				Impact is not yet fully analyzed. Current available margin has been reduced from 7 PSI to 4 PSI	Preliminary reanalysis for U-2 is acceptable U-1 will require a mini-purge system Plant Health Committee has reviewed. Will process Scope Change
32	12/18/08	Preliminary evaluations indicate that the current design flow for U1 hot leg injection may be less than adequate to support the uprated condition without a modification	M	Marginal	Schedule/ Cost					May require an additional modification. The scope/cost of mod is not yet determined	Will require system modification. Processing Scope Change
33	Prior to 2/1/08	License Amendment Request NRC Review could be delayed due to errors and omissions - NRC Acceptance - NRC Technical Review - ACRS Review - SBLOCA Confirmatory Analysis	M	Critical	Regulatory/ Schedule					Depending on the extent of the delay, could result in additional cost and extension of the project length	1. Prepare LAR consistent with RS-001, NRR Review Standard for Extended Power Uprates. • Develop EPPI for format and level of detail 2. Use Ginna EPU submittal as a guide for format and level of detail 3. Sequestor reviews and challenge boards at certain interim LAR milestones • Self Assessment after 1st LAR Section 4. Multi-party peer reviews using industry and regulatory experts 5. Advance meetings with NRC prior to submittal 6. VP Nuclear Power Uprate met with NRR management 7/21/08 7. Monthly meetings with NRR 8. CNO met with NRC EDO on 3/23/09 to discuss review schedules 9. FPL to establish a presence in Washington to coordinate questions and RAIs
34	7/30/08	Rewind at PB and PSL overlap	M	Significant	Schedule					Specialty Technicians and equipment are required at the same time at PB and PSL. Could delay rewind at PSL and affect PSL Critical	Siemens requires 31 days from start of PBNP outage and the start of PSL outage; currently 38 days exist in the schedule (Difference of 5 days) Scope Shift from SL-1-23 to SL-1-24 being evaluated which may alleviate the overlap See Mitigation Plan for details

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III. Risk and Mitigation

	Origin Date	Risk Event Description	PI&R	NRC Level	Type	Maximum Cost Exposure ($000)	Type of Estimate	Proc Level	Weighted Risk Exposure $000	Impact Description	Mitigation Action
35	5/29/08	WEC & SHAW vendor staffing level may not be sufficient to support project	M	Significant	Schedule	[redacted]				Could cause delays with LAR schedule and/or cost additional monies	Agreement on re-baselining reached; no impact to end date for Shaw and WEC
36	1/8/09	New NRC mandated Maintenance rule working hours will further limit allowed working hours	M	Marginal	Cost					Potentially extend outage Durations and/or increase costs.	EPU management working with Licensing to ensure an acceptable procedure which will minimize the impact to EPU
37	10/14/08	There is potential that Legacy Analysis or License basis issues may be uncovered during re-analysis for EPU LAR	M	Significant	Programmatic					Two such items have already been identified: PB FW temp and PTN CTMT analysis which are being tracked by a separate line item. The impact is difficult to quantify until discovery	Developed and issued EPPI-345; new instruction that defines risk identification and mitigation utilizing WM-AA-1000. Thus far, the process has been effective
38	6/3/2008	Transition to Nuclear Asset Management Systems (NAMS)	M	Marginal	Programmatic					May cause delays with review and approval of Engineering Documents	Per Fleet wide Change Management Plan Hold meeting with NAMS coordinator and Site PMs Transition to NAMs currently scheduled for Dec 09

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Risk and Mitigation

- Undefined Scope in Formal Analysis [redacted] 1
- Approximate High Risk Weighted Exposure = [redacted] 2
- Approximate Total weighted Risk Exposure = [redacted] 3

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IV. Implementation Options

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IV. Implementing Options

NRC LAR Schedule

- **PSL1 EPU LAR Planned Submittal September 2009**
  - 14 month review period projected
- **PSL2 EPU LAR Planned Submittal January 2010**
  - 14 month review period projected

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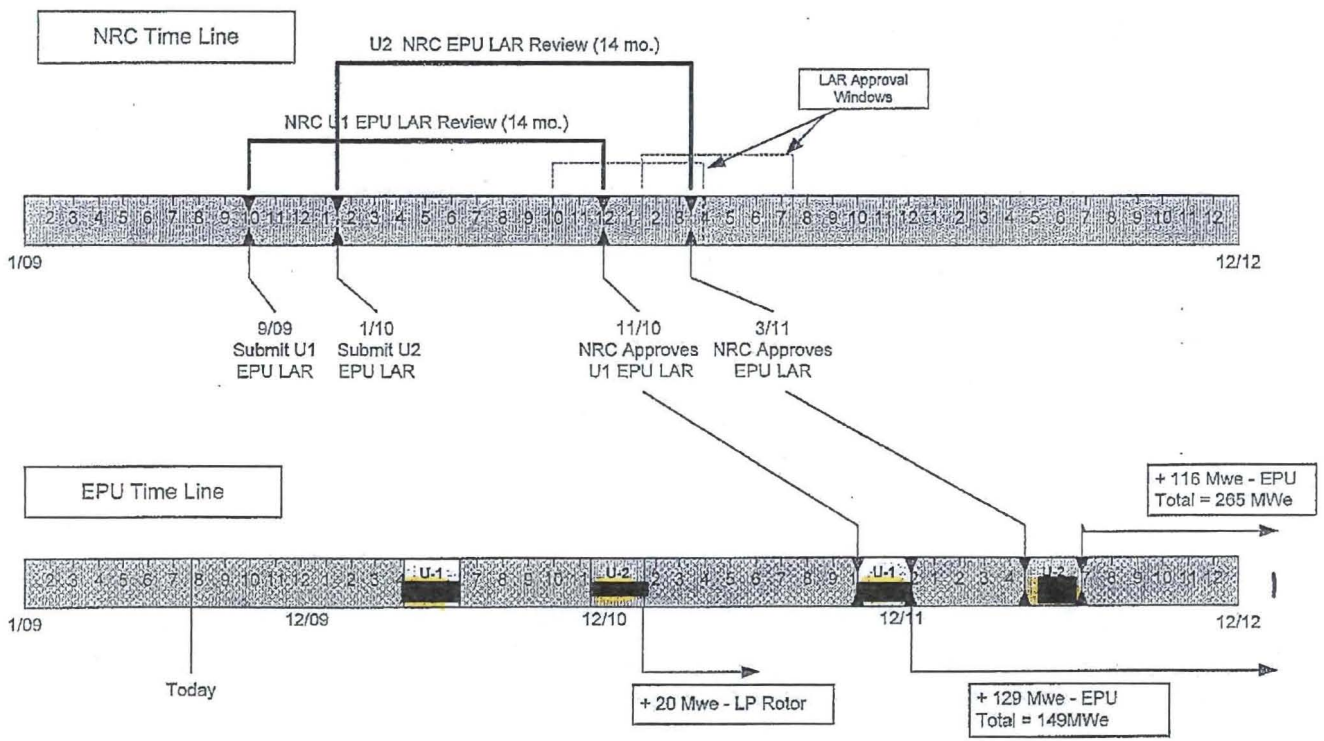
IV. Implementing Options

St. Lucie NRC Schedule



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IV. Implementation Options

PSL and PTN EPU Outage Durations being considered to have one short – one long Outage. Advantages appear to be as follows:

Advantages

–No overlapping Outages

–Improves certainty in Engineering and Planning

–Allows Site teams to develop team work and efficiencies

–Fewer complex Outages

–Improved leveraging of Fleet and Specialty resources

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IV. Implementing Options

Project Estimates and Valuation

- **Estimates are conceptual only**
  - Formal estimates can not be established until designs are complete
  - Current design completion will not occur until 2011.
  - Current Bechtel EPC costs are based on a "load board" concept
  - Significant variability in the cost when compared to original budget
- **Initial licensing and engineering has resulted in increased project scope**
- **Capacity of the organization does not support self performance EPC construction costs will be higher but have lower implementing risks**
- **Current higher estimates continue to show value to the customers without reliance on increased MWe output**

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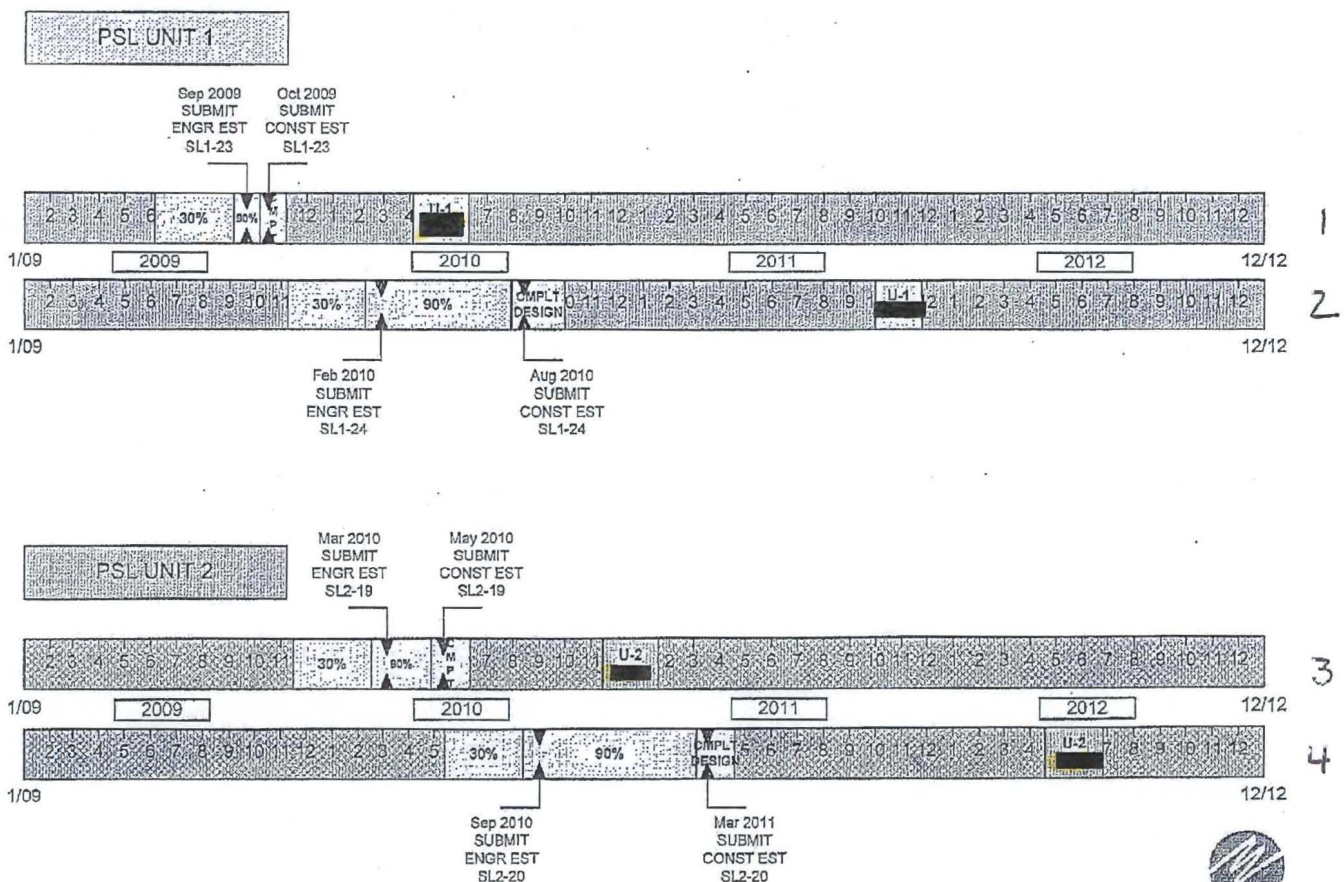
IV. Implementing Estimates

PSL - Design and Estimating Time line
Current Plans to not complete estimates until 2011



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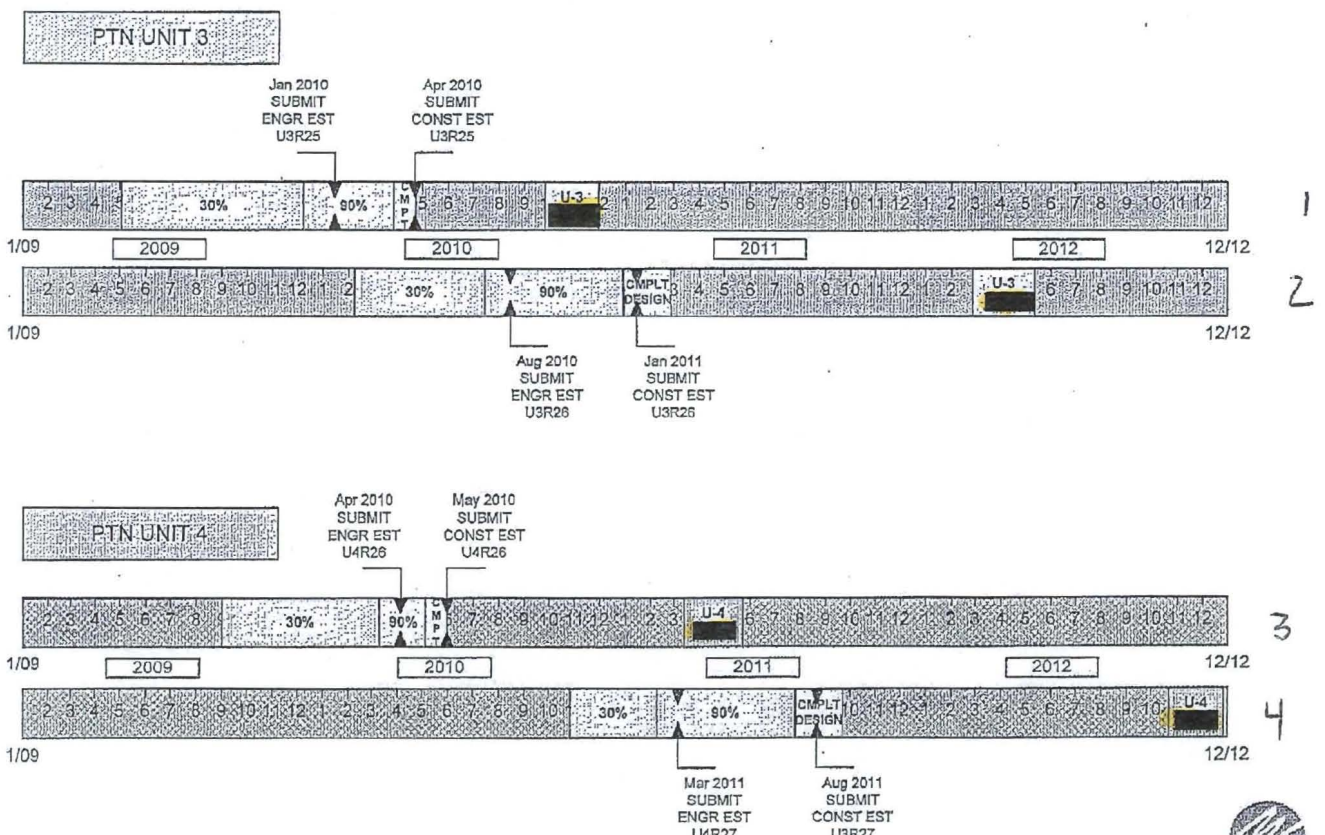
IV. Implementing Estimates

PTN - Design and Estimating Time line
Current Plans to not complete estimates until 2011



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IV. Implementing Estimates

FPSC Needs Filling
St. Lucie (9/17/09)

- Perform Major Work for Each Unit During Separate Outages in 2011 and 2012
- Increase in Gross Power of 11% for Each Unit
- Net Electrical Increase from 840 MWe to 943 MWe
- Combined Two Unit Total of 206 MWe
- Estimated Nominal Cost for PSL are Approximately $651 Million
- Annualized Base Revenue Requirements for the First 12 Months of Operation, PSL1 - $59.8 Million PSL2 - $61.8 Million

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IV. Implementing Estimates

FPSC Needs filing
Turkey Point (9/17/09)

- Perform Major Work for Each Unit During Separate Outages in 2011 and 2012
- Increase in Gross Power of 14% for Each Unit
- Net Electrical Increase from 700 MWe to 804 MWe
- Combined Two Unit Total of 208 MWe
- Estimated Nominal Cost for PTN are Approximately $750 Million
- Annualized Base Revenue Requirements for the First 12 Months of Operation, PTN3 - $76.4 Million PTN4 - $72.9 Million

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IV. Implementing Estimates

FPSC Needs Filing
St. Lucie & Turkey Point
Common Elements (9/17/09)

- Perform Major Work for Each Unit During Separate Outages in 2011 and 2012
- Plan to Submit LAR to NRC in January 2009
- Expected Approval by NRC but not Assured Spring 2010
- Changes to the Transmission System for All 4 Units is Estimated to be $45 Million
- Customer Bill Impact Between 2009 and 2012 is Conservatively Estimated Between $0.34 to $1.79 per 1000 kWh
- Customer Bill Impact in 2013 from all 4 Units is Conservatively Estimated to be $0.21 per 1000 kWh for the First Full Year of Operation of All the Uprates
- Aggressive Schedule to Complete in 2011 and 2012. May be Impacted by Regulatory Reviews and Procurement and Could Cause Delays in Schedule
- Requested Exemption from the FPSC Bid Rule

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IV. Implementing Estimates

FPSC Needs Filing
St. Lucie & Turkey Point
Common Elements (9/17/09)

- Economic Analysis performed on Nine Scenarios of Fuel Costs and Environmental Compliance Costs
  - Uprates have a lower CPVRR in 8 of 9 Scenarios
  - CPVRR Savings in 8 of 9 Scenarios range from $122 Million to $ 863 Million
  - In 7 of 9 CPVRR Savings is Greater than $200 Million
  - In One Case with Low Gas and Minimum Environmental Costs Results Indicate a $33 Billion in CPVRR Savings for Our Customers on an FPL System Wide Basis Due to the Large Amounts of Natural Gas Used on FPL's System.

- Based on FPL's Analysis
  - Likely Net CPVRR for Our Customers
  - Non-GHG Emitting Generation for Many Years
  - Ultimately a Net Savings, Not a Net Cost, to Customers

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IV. Implementing Estimates

Saint Lucie Outages

	Proforma		Current		ForeCast	
PSL	U-1	U-2	U-1	U-2	U-1	U-2
LAR Submittal	9/1/2009	9/1/2009	9/1/2009	1/31/2010	9/1/2009	1/31/2010
1st Outage Duration						20 MWe
2nd Outage Duration						
In Service Date	October 2011	April 2012	Dec-11	June 2012	Dec-11	June 2012
MWE	103	103	129 [5]	136 [5]	129 [5]	136 [5]

Notes

All Outage durations to be reviewed & approved by CNO upon completion of scope definition

[1] Outage durations driven by Generator rewind currently in the approved Outage schedule

[2] Outage duration driven by Alloy 600 cold leg nozzle repair

[3] Outage duration driven by HP & LP Turbine and MSR Replacements

[4] Target goal for Six Sigma Team rewind outage durations

[5] MWe based on Siemens heat balance (contract target)

Longer duration Outages have been included in the business model

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IV. Implementing Estimates

Turkey Point Outages

	Proforma		Current		Forecast	
PTN	U-3	U-4	U-3	U-4	U-3	U-4
LAR Submittal	9/1/2009	9/1/2009	6/01/10 [5]	6/01/10 [5]	6/01/10 [5]	6/01/10 [5]
1st Outage	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Duration						
2nd Outage						
Duration						
In Service Date	April 2012	October 2012	May 2012	December 2012	May 2012	December 2012
MWE	104	104	118 [4]	118 [4]	118 [4]	118 [4]

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2
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4
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Notes

All Outage durations to be reviewed & approved by CNO upon completion of Scope definition

[1] Outage durations driven by Generator rewind currently in the approved Outage schedule

[2] Outage duration driven by HP Turbine and MSR replacements

[3] Target goal for Six Sigma Team rewind outage durations

[4] MWe based on Siemens heat balance (contract target)

[5] AST LAR must be approved prior to submittal of EPU LAR

Longer duration Outages have been included in the business model

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Feasibility Analyses for EPU Project

Feasibility Analyses for EPU Project

	Needs Filing 2007	NCRC May 2008	NCRC May 2009	EPC Risk Analysis at 399 Mwe	EPC Risk Analysis at 481 Mwe
PSL Cost $M	$651	$657	$657	$796	$796
PTN Cost $M	$750	$750	$750	$910	$910
Total Cost $M	$1,401	$1,407	$1,407	$1706 [1]	$1706 [1]
PSL EPU MWe	206	206	191 [2]	191 [2]	245 [2]
PTN EPU Mwe	208	208	208	208	236
Total EPU Mwe	414	414	399	399	481
$/kW	$3,384	$3,399	$3,526	$4,276	$3,547
CPVRR $M	$122-$863 [3]	$346-$1,109 [4]	$683-$1,574 [5]	$282-$1,210 [3]	$315-$1,350 [3]
AFUDC (Approx			~ $350M	~$390M	~$390M

Notes:

1. Includes Undefined Scope PSL - $60 M and PTN - $77 M
2. PSL 2 Participation MWe removed from calculation
3. There is a CPVRR savings in 8 of 9 Scenarios analyzed
4. There is a larger CPVRR savings than the previous year in 8 of 9 scenarios analyzed
5. There is a larger CPVRR savings than the previous year in all scenarios analyzed

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Lessons Learned

- **Undefined Scope and Risk Assessment**
  - Need to look at individual project risks early in original scoping
  - Need a better way to assess Engineering and implementation cost increase risk amounts
  - Underestimated the risk and costs associated with the fast track project
  - Current undefined scope allowance is not aligned to the risk matrix
  - Did not assess capacity of organization and costs

- **NRC Licensing**
  - Need a formal licensing risk analysis of the LAR and related issues
  - Existing plant conditions with low margin were not assessed for risk completely

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Lessons Learned

- **Fast Track Modification Impacts and Risks**
  - Looked at the project only from a high level risk
  - Should have done a more detailed risk assessment when establishing the budget
  - Did not address the impact of a fast track project on station staff

- **Cost Reporting and Early Warning**
  - Early warning on cost overruns and undefined scope depletion were not dealt with in a timely manner
  - Undefined scope allowance used in establishing base contracts and work left little for emergent items or increased scope
  - Must include undefined scope allowance based on level of risk/progress on project
  - KPIs and detailed cost reporting structures were not established early enough in the project

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