BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

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In Re: Nuclear Cost Recovery Clause Docket No. 110009-EI

FILED: July 8, 2011

(PUBLIC 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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FPSC-COMMISSION CLERK

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1	DIRECT TESTIMONY
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3 .	WILLIAM R. JACOBS JR., Ph.D.
4	On Behalf of the Office of Public Counsel
5	. Before the
6 ·	Florida Public Service Commission
7	Docket No. 110009-EI
8	LINTRODUCTION
9 Q.	PLEASE STATE YOUR NAME, TITLE AND BUSINESS ADDRESS.
10 A.	My name is William R. Jacobs, Jr., Ph.D. I am a Vice President of GDS Associates,
· 11	Inc. My business address is 1850 Parkway Place, Suite 800, Marietta, Georgia,
12	30067.
13	· .
14 Q.	DR. JACOBS, PLEASE SUMMARIZE YOUR EDUCATIONAL
15	BACKGROUND AND EXPERIENCE.
16 · A.	I received a Bachelor of Mechanical Engineering in 1968, a Master of Science in
17 .	Nuclear Engineering in 1969 and a Ph.D. in Nuclear Engineering in 1971, all from
18	the Georgia Institute of Technology. I am a registered professional engineer and a
19	member of the American Nuclear Society. I have more than thirty years of
20	experience in the electric power industry including more than twelve years of power
21	plant construction and start-up experience. I have participated in the construction and
22	start-up of seven power plants in this country and overseas in management positions
23	including start-up manager and site manager. As a loaned employee at the Institute of
24	Nuclear Power Operations ("INPO"), I participated in the Construction Project
25	Evaluation Program, performed operating plant evaluations and assisted in the

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1 development of the Outage Management Evaluation Program. Since joining GDS 2 Associates, Inc. in 1986, I have participated in rate case and litigation support 3 activities related to power plant construction, operation and decommissioning. I have 4 evaluated nuclear power plant outages at numerous nuclear plants throughout the 5 United States. I am currently on the management committee of Plum Point Unit 1, a 6 650 MWe coal fired power plant under construction near Osceola, Arkansas. As a 7 member of the management committee, I assist in providing oversight of the EPC 8 contractor for this project. I am currently the Georgia Public Service Commission's 9 (GPSC) Independent Construction Monitor for Georgia Power Vogtle 3 and 4 nuclear 10 project. As the Independent Construction Monitor I assist the GPSC Commissioners 11 and Staff in providing regulatory oversight of the project. My monitoring activities include regular meetings with project management personnel and regular visits to the 12 13 Vogtle plant site to monitor construction activities and assess the project schedule and 14 budget. My resume is included as Exhibit WRJ-1.

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

Yes, I was. In addition to myself, the GDS team involved in the review and 17 A. 18 evaluation of the requests for authorization to recover costs consisted of Mr. James P. 19 McGaughy, Jr., a former nuclear utility executive with over 37 years of experience, 20 and Mr. Brian Smith, an expert in production cost modeling and feasibility analyses. 21 Mr. Smith is sponsoring testimony on an aspect of our review. His qualifications are 22 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 23 24 incorporated and adopted it as my own in this testimony.

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Q. WHAT IS THE NATURE OF YOUR BUSINESS?

A. GDS Associates, Inc. ("GDS") is an engineering and consulting firm with offices in 2 Marietta, Georgia; Austin, Texas; Manchester, New Hampshire; Madison, Wisconsin; 3 and Auburn, Alabama. GDS provides a variety of services to the electric utility 4 industry including power supply planning, generation support services, rates and 5 regulatory consulting, financial analysis, load forecasting and statistical services. 6 Generation support services provided by GDS include fossil and nuclear plant 7 8 monitoring, plant ownership feasibility studies, plant management audits, production cost modeling and expert testimony on matters relating to plant management, 9 10. construction, licensing and performance issues in technical litigation and regulatory 11 proceedings.

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Q. WHOM ARE YOU REPRESENTING IN THIS PROCEEDING?

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

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17 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.

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25 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.

3 Q. PLEASE PROVIDE A BRIEF OVERVIEW OF THE NATURE AND STATUS 4 OF FPL'S NUCLEAR PROJECTS.

FPL currently has two major nuclear projects under way. The most active project at 5 A. 6 this time is the project to increase the generating capacity of FPL's existing nuclear 7 units, Turkey Point 3 and 4 and St. Lucie 1 and 2, by a total of 450 megawatts. This 8 project is referred to as the extended power uprate or EPU project. It is currently. 9. scheduled to be completed in 2013. FPL has spent approximately \$700 million of an 10 estimated total cost of \$2.48 billion on the EPU project. The second project is the **1**ŀ development of Turkey Point 6 and 7, a new nuclear plant consisting of two 12 Westinghouse AP1000 reactors. This project is in the licensing stage. It is projected 13 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 14 15. carrying costs and escalation) of \$11.1 billion.

17 Q. PLEASE SUMMARIZE FPL's REQUEST FOR COST RECOVERY IN THIS 18 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.

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22 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.

8 Q.WHAT IS THE PURPOSE OF YOUR TESTIMONY?

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In my testimony, I will address three subjects. The first subject is the inappropriate 9 Å. methodology that FPL employs to assess the long-term feasibility of its EPU uprate 10 project. Next, I will describe how the deficient feasibility methodology and 11 imprudence on FPL's part in the areas of selecting a "fast track" approach for the 12 EPU project, estimating the overall costs of the uprate projects and managing risk 13 14 during the project have potentially placed the utility in the position of incurring 15 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 16 to collect from customers. Finally, I will address the issue relating to the estimate of 17 18 the capital costs of its EPU project that FPL submitted in prefiled testimony dated 19 May 1, 2009, and that it decided not to update either prior to or during the September 20 2009 hearing in Docket No. 090009-EI.

21 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.

1 A. I conclude that FPL's comparison of the cumulative present value of revenue 2 requirements of two resource plans--one incorporating the nuclear uprate projects and 3 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 5 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 6 7 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 8 9 overall project cost is known, stable and well defined. However, if the project costs 10 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 11 excluded from the comparison over time, the exercise can cause misleading results: 12 13 based only on "to go" costs, the analysis will likely continue to show feasibility, but 14 when all costs are considered, the project may be uneconomical for customers. If 15 there was ever a valid basis for using the comparison of revenue requirements as the 16 means of evaluating the feasibility of the uprate projects, it has eroded in light of 17 FPL's experience with estimating the costs of the project. My GDS colleague, Brian 18 Smith, will illustrate the problem and propose a means of compensating for the 19 distortion produced by FPL's inappropriate methodology pending the adoption of a 20 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 21 22 projects similar to the "break-even" study that it prepares to support the long-term 23 feasibility of its proposed new nuclear units, and to calculate separate such 24 "breakeven" thresholds for the St. Lucie and Turkey Point sites.

1Q.PLEASE SUMMARIZE YOUR TESTIMONY CONCERNING2MANAGEMENT IMPRUDENCE AND YOUR RECOMMENDATION THAT3THE COMMISSION DISALLOW COSTS FOR THE EPU PROJECT THAT4ARE GREATER THAN THE BREAKEVEN COSTS.

FPL's uprate projects began with what FPL styles an initial "scoping" study, followed 5 Α. 6 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. 7 At the beginning, it is imbued with enormous uncertainties. This type of project is 8 9 uniquely unsuitable for the fast track approach, in which an organization commits to a 10 project and spends large sums before it has any idea of the ultimate cost. Not only 11 did FPL not have a reasonable idea of the final cost of the project, FPL exacerbated 12 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-13 14 effective than the alternative to the uprate). Such a "breakeven" analysis is better 15 suited to a project that is characterized by substantial uncertainty than is the 16 comparison of revenue requirements that FPL adopted as its long term feasibility 17 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 18 is adequate for the circumstances. Further, FPL was slow to recognize and take into 19 account early indications that its initial estimates were inadequate. These missteps 20 constitute imprudence that has exposed customers to the real likelihood that costs of a 21 22 plan with the uprate projects will be higher than corresponding costs of a resource 23 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 24 data indicate that customers will see net costs, not net benefits, from the uprate 25

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	1 .	projects. This is the case even though the biggest expenditures are yet to come. To
	2	protect the customers from having to bear unreasonable costs occasioned by FPL's
	3	imprudence. I recommend that the Commission should disallow all costs greater than
	4	the breakeven cost from the amount that FPL seeks to collect through the NCRC.
	5	Because estimated capital costs and years of operations remaining prior to the
	6	expiration of operating licenses differ materially between the St. Lucie and Turkey
	7	Point uprate activities. I further recommend that the Commission direct FPL to
	8	perform a breakeven analysis for each EPU project, so that the economic feasibility
	9	and the justification for the continuation of the extended uprate project at each plant
	10	site can be evaluated individually rather than being lumped together.
•	10 11	
	12 Q .	PLEASE SUMMARIZE YOUR CONCLUSIONS AND
	13 [.]	RECOMMENDATIONS WITH RESPECT TO THE ISSUE OF WHETHER
	14	FPL SHOULD HAVE AMENDED ITS TESTIMONY CONCERNING ITS
	15	ESTIMATE OF CAPITAL COSTS ASSOCIATED WITH THE UPRATE
	. 16	PROJECTS DURING THE SEPTEMBER, 2009 EVIDENTIARY HEARING.
·	17 A.	Based on my review of information provided in discovery, I conclude the information
	18	regarding the cost of the EPU projects that FPL included in prefiled testimony in May
	19	2009 was not the most current view of the utility, as the estimate in the May prefiled
	-20	testimony had been effectively superseded by revised estimates as of the Executive
	21	Steering Committee meeting of July 25, 2009. At that time, managers of the uprate
	22	projects increased the estimate contained in May 2009 prefiled testimony by some
	23	\$300 million, representing a 21% increase above the estimate contained in the
	24	prefiled testimony. FPL's uprate managers adjusted their estimates of capital costs
,	· 25	again in August 2009, when they increased estimated capital costs by another \$144.5

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1		million, or a total of \$443.6 million more than the amount FPL had been using as its
2		estimate since 2007. FPL should have apprised the Commission of these
3		developments no later than the time when its witness testified in the evidentiary
4		hearing conducted on September 8, 2009. Further, because the capital cost estimate is
5		a key component of the utility's long-term feasibility study which the Commission's
6		rule requires FPL to present annually, FPL also should have revised its feasibility
7		calculations to reflect the increased capital cost estimate and the correspondingly
8		lower benefits associated with the increase during the same hearing. I am informed
9		by OPC's counsel that OPC regards these failures as a violation of the rule governing
10		the nuclear cost recovery clause.
11 ·		IV. FPL'S INAPPROPRIATE METHODOLOGY FOR MEASURING
1 2		LONG TERM FEASIBILITY OF UPRATES
13	Q.	PLEASE SUMMARIZE THE METHODOLOGY THAT FPL EMPLOYS IN
14		ITS ANALYSIS OF THE LONG TERM FEASIBILITY OF THE UPRATE
15		PROJECTS.
16	A .	FPL uses a methodology called the Current Present Value of Revenue Requirements
17		(CPVRR). Using this methodology, the Company compares the revenue
18		requirements flowing from a generation portfolio containing the EPU projects to a
19		generation portfolio without the EPU projects for the entire life of the projects. The
20		revenue requirements include fuel costs, capital costs, operating costs and all other
21 .		costs related to operation of the plants. FPL calculates the present value of these
22		costs and compares the sum of the revenue requirements for each generation
23		portfolio. The generation portfolio with the lower CPVRR is considered to be the
24	•	more economical portfolio. FPL excludes expenditures incurred prior to the analysis,

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1		and includes only the remaining costs to complete the unit as capital costs, on the
2	-	basis that the expenses incurred in prior periods are "sunk costs."
3		•
4	·Q.	DID YOU ADDRESS THIS CHOICE OF METHODOLOGIES IN THE
5	•	TESTIMONY THAT YOU SUBMITTED IN DOCKET NO. 100009, PRIOR
6.		TO THE DECISION TO DEFER FPL-RELATED ISSUES TO THIS
7		HEARING CYCLE?
8	A.	Yes, I discussed my view of the shortcomings of the methodology as it is applied to
9		the EPU uprate projects in the prefiled testimony that I presented in Docket No.
10		100009-EI. The comments that I made in that testimony remain valid.
11		
12	Q.	PLEASE TELL THE COMMISSIONERS WHY YOU BELIEVED THEN,
13		AND CONTINUE TO BELIEVE NOW, THAT FPL'S METHODOLOGY, AS
14		IT IS APPLIED TO THE EPU UPRATE PROJECTS, IS DEFICIENT.
15	А.	The CPVRR method utilizing only cost to complete is appropriate for evaluating a
16	•	project with known and stable cost. As I explained in my testimony in Docket No.
· 17		100009-EI, this method is not appropriate for evaluating the economics of a project
18	•	for which the final estimated cost is rapidly increasing. If the estimated total cost is
19		increasing at a rate that approximates the expenditures on the project, the cost to
20		complete will be unchanged while the total project cost is rapidly increasing. This
21	•	masks the true picture of whether the project is economically feasible.
22		
23	Q.	ARE THERE INDICATIONS THAT THE SHORTCOMING THAT YOU
24		DESCRIBE IS AFFECTING THE VALIDITY OF THE RESULTS OF THE
25		ANNUAL ANALYSIS THAT FPL CONDUCTS?

1. A. Yes. As discussed further in the testimony of OPC witness Brian Smith, it appears 2 that the EPU projects provide net costs, not net benefits, to customers when total costs 3 of the project are considered and compared to the alternative generation portfolio. 4 Yet, FPL's feasibility analyses, which ignore past expenditures, continue to show that 5 the EPU projects have economic benefit. 6 7 Q. HOW DOES THE METHODOLOGY THAT FPL EMPLOYS TO MEASURE 8 LONG TERM FEASIBILITY OF ITS EPU UPRATE PROJECTS COMPARE 9 TO THAT WHICH IT USES TO ASSESS THE FEASIBILITY OF ITS 10 **PROPOSED NEW TURKEY POINT NUCLEAR UNITS?** 11 FPL uses a "breakeven" methodology to assess the feasibility of the new Turkey · A. 12 Point 6 and 7 units. In the breakeven methodology, FPL calculates the total capital 13 cost at which the CPVRR of a generation portfolio including the new nuclear units 14 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 15 16 is less than the breakeven cost, they are economically feasible. 17 18 Q. WHAT INFORMATION DOES A BREAKEVEN ANALYSIS PROVIDE, AND 19 IN WHAT CIRCUMSTANCES IS THIS INFORMATION USEFUL? 20 A breakeven analysis provides the project total cost that the project must come in at A. or below for the project to be beneficial to ratepayers. This information is very useful 21 for project managers to monitor the ultimate feasibility of the project as the project 22 23 proceeds. If project cost estimates are rapidly increasing, the breakeven analysis 24 provides an early warning to project managers that the project may no longer be

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feasible.

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2	Q.	HAS FPL CONDUCTED A BREAKEVEN ANALYSIS FOR ITS UPRATE
3		PROJECTS THAT IS SIMILAR TO THE ONE IT PERFORMS FOR ITS
4.		PROPOSED NEW NUCLEAR UNITS?
5	А.	No. In response to OPC Interrogatory No. 85 (included as Exhibit WRJ-3), which
. 6		asks FPL to explain why a breakeven cost analysis was conducted for Turkey Point 6
7		and 7 but not for the EPU project, FPL states:
8 9 10		It is not necessary to perform a breakeven cost analysis in order to evaluate a potential generating unit option.
10 11 12		This response further states:
12 13 14 15 16 17 18		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.
19 20		In testimony (Sim May 2, 2011 page 10, lines $12 - 17$), FPL asserts that the
21		comparison of the cumulative net present value of revenue requirements is the
22		appropriate method to use for the uprate projects. FPL offers no explanation for this
23		position.
24		
25	Q.D	O YOU AGREE WITH FPL ON THIS POINT?
26	А.	No. I believe the breakeven analysis is more appropriate than the CPVRR
27		methodology for the uprate projects, just as it is the methodology of choice for the
28		proposed new units.
29		
30	Q.	IN RESPONSE TO OPC INTERROGATORY 85 FPL DISCUSSES ITS USE
31		OF A CPVRR ANALYSIS TO EVALUATE THE WEST COUNTY ENERGY

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1		CENTER UNITS. DO YOU AGREE THAT THIS IS AN APPROPRIATE
2		ANALOGY?
3	A.	No, I do not. The use of a CPVRR evaluation is appropriate for the West County
4		Energy Center Units. These are gas fired, combined cycle units of which hundreds
5		have been constructed around the country. FPL has extensive experience, including
6		recent experience, in constructing this type of unit. For a unit with high cost
,7		certainty, such as a combined cycle unit, a CPVRR evaluation is appropriate. This is
8		clearly not the case for the EPU projects.
9 .		
10	Q.	WHAT SIMILARITIES EXIST BETWEEN THE PROJECT TO BUILD NEW
11		UNITS AND THE UPRATE PROJECTS THAT LEAD YOU TO STATE THE
12		SAME TYPE OF FEASIBILITY ASSESSMENT SHOULD BE PERFORMED
13		FOR EACH?
14	A.	Because of the complexity of the project and FPL's decision to "fast track" its
15 ·		construction prior to the completion of the engineering design activities that are
16		necessary to quantify costs, the costs of the EPU uprate projects are as highly
17		uncertain, if not more so, than the costs of the new Turkey Point units. (I will
18		develop the level of uncertainty that supports this observation more fully in a later
19	•	section of my testimony.) Accordingly, everything that FPL said about the suitability
20		of the breakeven analysis to the proposed new nuclear units is fully applicable to the
21		EPU uprate projects. As the uprate projects progress, it is important for project
22		managers to recognize when the project cost forecast is approaching the point at
23		which the project is not economically feasible. Reliance on only a CPVRR
24		methodology can result in the continuation of a project when it is no longer
25		economically feasible and when it is too late to make necessary changes.

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2	Q.	WHAT ACTION DO YOU RECOMMEND TO THE COMMISSION ON THIS
3		SUBJECT?
4	A.	I recommend that the Commission find the long term feasibility methodology that
5		FPL applies to its uprate projects is inappropriate and should not be accepted. I
6		recommend that the Commission find that the results of the feasibility analysis
7		sponsored by FPL in this case are misleading, in that they mask what can be
8	•	described a "shortfall in cost-effectiveness" of the uprate projects that I attribute to
.9		management imprudence. Finally, FPL should be directed to perform a breakeven
10	•	analysis for its uprate projects similar to that which it prepares annually for its
11		proposed new units.
12		
13	Ţ	IMPRUDENCE OF FPL'S MANAGEMENT OF THE EPU PROJECTS
14 15	Q.	HOW IS FPL APPROACHING THE PLANNING AND CONSTRUCTION OF
16		THE EPU UPRATE PROJECTS?
17	A.	FPL is employing what is called a "fast track" approach.
18		
19	Q.	WHAT IS A "FAST TRACK" METHOD OF CONSTRUCTING A PROJECT,
20		AND HOW DOES THAT DIFFER FROM A NORMAL APPROACH?
21	A.	FPL witness Jones, in his May 2, 2011 testimony, at page 17, quotes the Project
22		Management Institute's "A Guide to the Project Management Body of Knowledge",
23		third edition. I will quote from the same book, page 146:
24 25 26 27 28		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

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

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

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The architecture and engineering drawings provide the final engineering design of the 8 A. 9 project. "Final engineering design" refers to the full specifications (size, materials, configuration, etc.) of the physical components to be installed. Proceeding without 10 11 ° 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 12 different from a preliminary design that is implemented on the project. In addition, 13 until the final design is complete, the true scope of the project is not known and the 14 final cost is impossible to estimate with any degree of accuracy. Thus, the actual 15 16 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 17 construction contractor will not be able to provide a firm bid on a project based only 18 on preliminary engineering. Since the scope is not known, the risk is too great. 19 Therefore, to protect itself, an engineering and construction contractor will only 20 provide a bid on a "time and materials" basis. This results in a high likelihood of 21 22 increased costs.

23 Q. DOES FPL PLAN TO PERFORM WORK WITHOUT COMPLETE DESIGN 24 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

1 testimony. For my immediate purposes, I have attached as Exhibit WRJ-4 a graph 2 that FPL uprate managers presented to FPL's Executive Steering Committee for the 3 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 4 5 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 6 gain an appreciation for the degree to which the rate of completed design engineering 7 8 would have to accelerate in order for FPL to achieve its current schedule for 9 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 10 11 then drawn a dotted line to connect that date to the target date. The steep dashed line 12 shows that for FPL to adhere to its schedule for placing the additional megawatts of 13 capacity associated with the uprate projects into service, either the speed with which 14 FPL and Bechtel are performing design engineering would have to increase 15 dramatically-at a rate which experience to date suggests would be highly unlikely-16 or FPL would have to perform construction without having completed design work, 17 which would mean the ultimate costs would be even more uncertain. Of course, the 18 alternative would be to slip the schedule. However, that would also have 19 consequences in the form of increased costs and a smaller amount of time within 20 which to generate fuel savings sufficient to offset the capital costs of the uprate 21 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 22 23 that it intends to adhere to the existing schedule, notwithstanding the large amount of 24 design engineering that remains to be done. That plan necessarily entails the type of 25 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.

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

9 A. In my opinion, it is not. I agree wholeheartedly with FPL witness Jones when he says 10 "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 11 and construction projects undertaken in the nuclear industry since the construction of 12 13 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 14 15 projects represent a combined 450MWe of nuclear capacity, which is larger than 16 some existing nuclear plants. Practically all of the last generation of nuclear projects 17 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 18 19 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 20 control cost and provide some degree of cost certainty to ratepayers, stockholders 21 22 and regulators. This is the approach wisely taken by FPL and PEF in approaching the 23 Turkey Point 6&7 and Levy 1&2 projects. Nevertheless, FPL has chosen to approach 24 the EPU projects in the same, high risk manner in which the last generation of nuclear 25 units were built.

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2 ·	Q.	DOES FPL ACKNOWLEDGE THAT THE FAST-TRACK PROCESS HAS
3		CAUSED PROBLEMS?
4	А.	Yes. On July 25, 2009, the EPU project management gave a presentation to the
5		Executive Steering Committee (ESC) revealing significant project cost increases.
б		Part of the presentation consisted of project management executives discussing the
7		"lessons learned" so far in the project. Concerning the fast-track process, the
8		following bullets were included:
9 [`]		 Underestimated the risk and costs associated with the fast track project
10		concept (Turkey Point 7/25/2009 update page 39-Bates 000094)
11 -		 Fast Track Modification Control(Turkey Point 7/25/2009 update page 40-
12		Bates 000095)
13		o Looked at the project only from a high level risk assessment
14		o Should have don(e) a more detailed risk assessment when establishing
15		the budget
· 16		o Did not assess the quality of original site staffing due to fast tracking
17		These comments are from the Turkey Point presentation. Those from the St. Lucie
18	•	presentation are essentially the same. (Bates number 000474 and 000475)
. 19		
20	Q.	DID THE PROJECTS START OUT AS FAST TRACK
21		PROJECTS?
22	A.	No. Based on information that OPC acquired from FPL's former Vice President-
23		Uprates during discovery, it is my understanding that FPL contemplated proceeding
24	·	with the uprate activities using FPL's normal project management process before
25		senior management directed project managers to use the "fast track" approach to

	1		attempt to place the additional megawatts on line by 2012. See Exhibit WRJ-11.
	2		Pages TR-25-28.
	3 4	Q.	IS THE STATUS OF PROJECT DESIGN COMPLETION AN
	5		IMPORTANT FACTOR IN THE SUCCESS OF A PROJECT?
	6	A.	In my opinion, it is extremely important. Completing the design is the key to
	7		knowing the cost and schedule. Prior to the design reaching a relatively high state
	8		of completion a significant amount of uncertainty exists in the key drivers of
	9		project cost and schedule including:
•	10		• Number of modifications to be installed;
•	11 .		• Estimated craft manhours;
	12		 Estimated engineering costs;
• .	13		• Estimated equipment costs;
	14		• Estimated material costs;
	15		• Licensing requirements;
	16		• Project critical path.
	17	•	As a result, cost and schedule estimates for a fast track project are highly
	18		uncertain: Actual projects costs are likely to exceed initial estimates as the design
	19 [.]		of the project is completed and the scope of the project is identified. Initiating a
	20	•	very large and complex project with a high level of cost and schedule uncertainty
	21		can lead to an unsuccessful project that does not provide the hoped for benefits.
	22 23	Q.	DOES COST CERTAINTY INCREASE AS DESIGN ENGINEERING
	24		ADVANCES TOWARD COMPLETION?
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F	А.	res, and fre agrees. rage to of the September 9, 2009 presentation to the fre
2		Executive Steering Committee (ESC) states:
3		Engineering and Design will complete in December 2010
4 5		improving cost certainty.
6		(As of April 18, 2011, only 31% of the engineering design projects, called
7		modifications or "mods," have been completed.)
8		Page 7 of the March 8, 2010 presentation (a little over a year ago) to the ESC states:
9 [0 [1		The project is at the very early stages of design. Cost certainty will improve as design is completed.
12 13 14	Q.	THESE QUOTATIONS ABOVE REFER TO THE "DESIGN". WHAT IS
[5		MEANT BY THAT?
16	A.	These statements are referring to design engineering. The project record is full of
17		references to cost uncertainty usually associated with the status of the design
18		engineering of project modifications. Design engineering on this project is divided
19		into discrete packages that are associated with a particular project or modification.
20		Examples are Turkey Point Unit 3 Main Feed Pump Replacement, Condensate Pump
21		and Motor Replacement and Containment Cooling Modifications. The total EPU
22		projects currently consist of 209 Mods, including 95 at St. Lucie and 114 at Turkey
23.		Point. Over the past year, the projects have grown from 191 to 209 Mods, and there
24		likely will be more.
25		
26	Q.W	/HAT IS THE STATUS OF DESIGN ENGINEERING AT THIS TIME?
27	A.	As I said earlier, the latest information that I have is as of April 2011. It was supplied
28		by the Company in its response to OPC Interrogatory 50. It states that 31% or 65 of
29		the 209 Mods have completed design engineering allowing some cost certainty for
30		those Mods. From January 2010 until the latest data provided by FPL in April 2011,

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1		a period of 15 months, the FPL EPU organization has completed the design of 65
2		Mods (31%) or a little over 4 per month. They are scheduled to complete all 209
3		Mods by the end of 2011, or 144 over 8 months, or about 18 per month, requiring a
4		significant increase in the completion rate achieved to date. WRJ-4, to which I
5		referred earlier, is a graph from the October 27, 2010, meeting showing the schedule
6		for Design Modification completion. The dotted line indicating the slow pace of the
7		progress during the six months prior to April 18, 2011 and the additional line
8		indicating the steep rate of acceleration that would be needed to enable FPL to remain
9		"on course," provide a dramatic visual of the lack of engineering progress.
10 _.		-
11	Q.CC	OULD IT BE THAT A NUMBER OF MODS ARE ALMOST COMPLETE?
12	А.	According to the data, there are 23 Mods that are between 90% and 100% complete
13		and 37 that are between 30% and 90% complete. There are 67 that are between 0%
14		and 30% complete and 17 that have not been started. I do not find these figures
15	•	encouraging.
16		
17	Q.IS	THE COMPANY CONCERNED ABOUT THIS SITUATION?
18 19	A.	Yes, they are. In the March 23, 2011, ESC presentation (Exhibit WRJ-5) on page 21, FPL states that:
20 21 22 23	•	Bechtel (the EPC contractor) has struggled with meeting pre-outage milestones for design modifications requiring increased focus and management attention.
24 25		It also states that recovery plans have been established. FPL witness Jones stated in
26		his deposition of June 22, 2011 that he has started contracting out some of the work to
27		other engineering firms. (Jones deposition transcript, June 22, 2011, page 42, lines 22
28		-24) With an outage starting in five months, this may be too little, too late. I have
29		noted in the Company's response to OPC Interrogatory No. 56, which asks for the

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1	•	outage schedule, that every outage date is prefaced with the tentative "currently
2		scheduled."
3		· · ·
4	Q.	HAS LATE ENGINEERING ALREADY CAUSED DELAYS IN
5		COMPLETING THE EPU PROJECTS?
6	А.	Yes. The outage for completion of implementation of the first EPU project, St. Lucie
7		1, has slipped three months from to to to the state of th
8	:	outages have slipped some also. The ESC was told at its March 23, 2011, meeting
9		(ESC slides, page 36) (Exhibit WRJ(FPL)-6)
10 11 12 13		Moved outage start dates to provide additional time for engineering and planning, bringing more certainty with execution.
14	Q.	WHAT IS THE CURRENT OVERALL STATUS OF THE PROJECTS?
15	A.	As witness Jones indicates in his testimony, the projects are still in the early
16	;	stages. Engineering is only 50% complete on a manhour basis and only 31% of
17	, .	the known project modification designs are complete. At this point, according to
18	;	Dr. Sim, FPL has spent only \$700 million out of \$2.48 billion total. The first
19		
20		major EPU implementation and completion outage is coming up at St. Lucie 1,
21)	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
21)	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
22	2	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
21 22 23) 2 3	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
21 22 23 24) 2 3 4	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)
22 23 24 25) 2 5 5	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
22 23 24 25 26	5	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

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1	months for work that is, as of today's date, unplanned and unpriced. Based on
2	what they know now, the almost \$2 billion can only be an uneducated guess.
3	. •
4	Q. ARE THERE OTHER ISSUES THAT ARE OF CONCERN FOR THE EPU
5	COST AND SCHEDULE?
. 6	A. Yes. Witness .Jones identifies a number of additional problems beside the design
7	in his May 2, 2011, testimony: (Jones May 2, 2011, testimony, pages 35 – 38)
8	• Structural Integrity-This factor deals with the ability of existing buildings,
9	floors, walls, etc. to support new, heavier equipment in place and also as the
10	equipment is transported to its proper position in the plant. This engineering
11	and planning work has not been accomplished and will cause additional
. 12	engineering as well as construction.
13	 Limited Work and Staging Space—Because of the numerous mods to be
14	accomplished at the same time, the planning and scheduling of simultaneous
15	projects in the same work spaces are very difficult. This will cause additional
16	engineering and labor costs.
17	• Rigging of Equipment—Mr. Jones states that some of the equipment to be
18	replace or modified weigh up to 185 tons. Some of it is in places that are
19	difficult to access. The additional costs are associated with engineering and
20	implementation of this unplanned for work.
21	• Operating Plant Environment—I discussed this earlier. This means that every
22	action taken inside a licensed nuclear power plant must take into account the
23	plants NRC technical specifications. For example, there will some equipment
24	that cannot be taken out of service unless a backup is in operation. Physical
25	security, health physics, and radiation protection specifications must be

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1		strictly adhered to. Fitness for duty requirements must be applied to all plant
2		and contractor personnel.
3		 Work Order Planning and Integration with Routine Outage Activities—Work
4		in operating nuclear facilities must be detailed with strict, specific procedures
5		that must be developed before work begins. Also, during a refueling outage at
б		a nuclear power plant, there is a beehive of activity that will be taking place
7		normally without the installation of the 209 mods. Coordination of these
8		efforts will increase cost and lengthen schedules.
9	W	itness Jones indicates in his response to OPC INT 80 that:
10 11 12		the extent and impact of these complicating factors cannot be fully determined until the associated engineering and construction planning activities are completed.
13 14	Q.	WHAT DO YOU CONCLUDE CONCERNING THE MANAGEMENT OF
15		THE FPL EPU PROJECTS?
16	A.	I conclude that that the decision to fast track these projects and to pursue them
. 17		without performing a breakeven analysis was an imprudent decision on the part of
18		FPL management. I expect significant increases in project cost and more project
19		delays in the coming two years. Project cost will not be known until the project is
20		complete, rendering FPL's feasibility analyses of relatively little use. This fast
21		track decision will likely result in costs that will significantly exceed the cost of
22		the studied alternative.
23	Q.	HOW WOULD YOU DESCRIBE THE NATURE OF FPL'S EPU
24		PROJECTS, IN TERMS OF THE DEGREE OF UNCERTAINTY AND
25		COMPLEXITY?
26	A.	As witness Jones states in his testimony and I have discussed above, the EPU
27		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 1 2 accomplished within existing, operational nuclear plants, creating all the expensive complications that witness Jones discusses so well. I would add, 3 however, that witness Jones' points regarding complexity have been known from 4 the beginnings of the project, and demonstrate why the decision to "fast track" the 5 6 uprate projects was so risky. 7 IN YOUR OPINION, DO FPL'S ESTIMATED COSTS CONTAIN 8 Q. 9 ENOUGH CONTINGENCY AT THIS TIME GIVEN THE PRESENT 10 STATUS OF THE EPU PROJECTS? No, they do not. In its answer to OPC Interrogatory 77, FPL states that its 11 Α. contingency in its current number is from 0 to 7%, which seems quite small 12 considering that the engineering is only 50 % complete and the major construction 13 has not yet been estimated to the level of detail necessary to set up construction 14 15 . contracts (See response to OPC Interrogatory 83.) In my opinion, a higher contingency commensurate with the current design and construction status would 16 17 be appropriate. 18 FPL'S PAST AND CURRENT FEASIBILITY ANALYSES INDICATE 19 Q. THE EPU UPRATE PROJECT HAVE BEEN AND ARE CURRENTLY 20 21 COST-EFFECTIVE TO CUSTOMERS. DOES THAT ALLAY YOUR 22 CONCERNS REGARDING THE SIGNIFICANT INCREASES IN THE CAPITAL COSTS THAT FPL HAS ESTIMATED IT WILL INCUR TO 23 **COMPLETE THE PROJECTS?** 24

1	A.	No, it does not. As I discussed above, the capital costs are still uncertain at this
2		point. As OPC Witness Brian Smith points out, the EPU projects are not feasible
3		under the base case assumptions when costs spent to date are included. FPL has
4		not calculated a break-even cost and therefore does not know how much the
5		ratepayers can afford for them to spend on the projects. I recommend that the
6		Commission order FPL to immediately submit a breakeven analysis for the EPU
7		projects. The St. Lucie and Turkey Point projects should be looked at separately
8		in the analysis, with a break-even cost identified for each project.
9	1	· · ·
10	Q.	WHY DO YOU RECOMMEND SEPARATE ANALYSES FOR EACH
11		PROJECT?
12	A .	At current estimates, the Turkey Point project's estimated cost is approximately
13		\$250 million more than the estimate for St. Lucie. It is my understanding that the
14	•	capacity increase for the Turkey Point EPU project is less than that for St. Lucie.
15 ·		In addition, the operating licenses for Turkey Point expire in 2032 and 2033,
16		while St. Lucie's operating licenses expire in 2036 and 2043, giving St. Lucie 14
17		more unit-years of operation. Bear in mind that the economic feasibility of an
18		uprate project depends on the ability of the additional megawatts of nuclear
19		capacity to generate fuel savings over time that will more than offset the "price
20		tag" of capital investment. The higher capital costs, lower increments of
21		additional nuclear generating capacity, and shorter periods of service present a
22		greater "hurdle" that the Turkey Point uprate activities must overcome to
23		demonstrate economic feasibility. These differences between the two plants may
24		possibly show that the St. Lucie EPU has been "carrying" the Turkey Point EPU.

1		In any event, the differences warrant separate analyses for the plant sites, and
2		separate decisions with respect to whether each should continue.
3		
4	Q.	TO BE CLEAR, HOW HAS MANAGEMENT IMPRUDENCE IN
5		MANAGING THE EPU UPRATE PROJECTS, IN YOUR OPINION,
6		CONTRIBUTED TO THE SITUATION IN WHICH, WITH RESPECT TO
7		WHETHER CUSTOMERS WILL REALIZE NET BENEFITS OR NET
8		ADDITIONAL COSTS, THE ECONOMIC FEASIBILITY OF THE
9		PROJECT IS QUESTIONABLE?
10	A.	FPL's imprudent decision to fast track the EPU projects has led to a situation in
11	•	which FPL is spending substantial sums of money very quickly while not
12		knowing what the final bill is going to be. As FPL has acknowledged, it is
13		impossible to know what the projects will cost until the designs are complete.
14		The final designs were only 31% complete as of April 18, 2011. By using
15		inaccurate, understated estimates of project costs and ignoring money already
16		spent, the projects will always look feasible even though they may ultimately cost
17		the rate payer more than the alternative generation portfolio.
18		· · · ·
19	Q.	EVEN IF FPL'S EPU UPRATE PROJECTS TURN OUT TO BE NOT
20		COST-EFFECTIVE, ISN'T THAT OFFSET BY THE PROJECT'S FUEL
21		SAVINGS, FUEL DIVERSITY AND LOWER EMISSIONS OF
22		GREENHOUSE GASES?
23	. A.	Project fuel costs are the majority of costs that are included in the CPVRR or
24		breakeven analyses. Thus, these savings are already considered. The cost of
25		greenhouse gases is also taken into account in CPVRR and breakeven analyses.

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1		The value of fuel diversity has not been quantified, and should be a matter of
2		Commission policy; however, the fuel diversity benefits cannot be evaluated in
3		isolation from a realistic appraisal of economic feasibility, and would not be
4		worth pursuing at some level of cost.
5 [°]		
6	Q.	WHAT DO YOUR OBSERVATIONS REGARDING MANAGEMENT
7		IMPRUDENCE INDICATE WITH RESPECT TO THE AMOUNTS
8	·	COLLECTED FROM CUSTOMERS IN 2009, 2010, 2011, AND THE
· 9		AMOUNT THAT FPL WISHES TO COLLECT IN 2012?
10 _	A. ·	I recommend that the Commission require the Company to determine a breakeven
11		cost for each project. The Company should be allowed to collect future amounts
12	•	up to the breakeven costs. Amounts for 2009, 2010, 2011 and 2012 could be
13		collected as long as the breakeven values have not been exceeded. The amount of
14		the breakeven cost could be reviewed and trued up each year.
15		
16	Q.	BASED ON YOUR TESTIMONY ON THE SUBJECT OF PRUDENCE,
17		WHAT ACTION DO YOU RECOMMEND TO THE COMMISSION/
·18	A	I recommend that the Commission take the following actions:
1 9		1. Order FPL to submit a breakeven analysis for each EPU project, St. Lucie
20		and Turkey Point.
21		2. Based on these analyses, determine if Turkey Point EPU should be
22		continued.
23		3. Limit future recovery of EPU capital cost to the amounts determined in the
24		final breakeven analyses as filed by FPL at the conclusion of the project
25		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?

7 A. As the Commission learned last year, in February 2010 FPL engaged Concentric 8 Energy Advisors to investigate an employee complaint letter. In the letter the author 9 expressed his concern about (among other things) the disregard with which managers 10 of the uprate projects treated indications that the costs of the projects were rapidly 11 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, 12 13 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 14 15 testimony were not the best information known by FPL at the time of the September 16 2009 hearing, and that FPL's witness should have revised the estimate to reflect the 17 utility's then current view of the costs. As the Commission is also aware, FPL took 18 issue with its consultant's finding in this regard prior to the time that the Commission 19 deferred FPL-related issues to the 2011 hearing cycle. In this docket, Mr. Reed has 20 reiterated his conclusion that FPL should have revised its estimate of capital costs 21. upward prior to or during the September 2009 hearing, while FPL witnesses Art Stall 22 and Armando Olivera contend that, because the updated cost information was subject 23 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 24 25 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.

5 Q. WHAT INFORMATION DID YOU REVIEW IN FORMULATING YOUR 6 OPINION?

The documents and materials that OPC requested in discovery and that I reviewed for 7 A. 8 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 . 9 10 interrogatories, FPL's prefiled testimony in this docket and the transcripts of the 11 depositions of Art Stall, John Reed, and Terry Jones. By telephone, I monitored the 12 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 13 14 September 2009 hearing.

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16 Q. PLEASE DESCRIBE THE FACTS ON WHICH YOU BASE YOUR

17 CONCLUSION THAT FPL DID NOT PRESENT THE BEST AVAILABLE

18 INFORMATION REGARDING ITS ESTIMATE OF THE COSTS OF

19COMPLETING THE UPRATE PROJECTS DURING THE SEPTEMBER 200920EVIDENTIARY 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

25 project, including cost estimates, to FPL's Executive Steering Committee (ESC). In

1		the May 2009 presentation to the ESC, the total cost forecast for both St. Lucie and
2		Turkey Point remained the same as the original estimate. (OPCPOD1, No. 9,
3		FPL000103-000132) (Exhibit WRJ-7) However, a closer examination of the May
4		2009 forecasts shows that the total of costs for engineering, materials and
5		implementation had increased from the original estimate by over 25% for St. Lucie
6		from (\$475 million to \$595 million) and over 27% for Turkey Point from (\$546
7		million to \$696 million).
8		
. 9	Q.	PLEASE EXPLAIN HOW THESE CATEGORIES COULD HAVE
10		INCREASED IF THE OVERALL ESTIMATE DID NOT CHANGE.
11	A.	At the outset of the project, the uprate managers included a component in the estimate
12		that they labeled "Scope not estimated." Thereafter, each increase in costs that the
13	·	managers identified was assumed to reduce the "Scope not estimated" by the same
14		amount.
15		
16	Q.	DO YOU AGREE WITH THE MANNER IN WHICH FPL USED "SCOPE
17		NOT ESTIMATED" TO MAINTAIN A CONSTANT PROJECT ESTIMATE?
18	A.	No. Necessarily, the premise for the practice is that FPL had accurately quantified,
19		to the dollar, the ultimate cost of the project, when in fact FPL, because of its decision
20		to "fast track" the decision, had little grasp on the costs that would be incurred. FPL
21	•	had no basis for using the 'Scope not estimated" as a "balancing adjustment." In his
22		report, John Reed of Concentric Energy Advisors also criticized this practice.
23		
24	Q.	PLEASE CONTINUE.

The Cost and Budget Summary maintained a constant Total project cost by reducing A. 1 the cost allocation for "Scope not estimated" from \$182 million to \$69 million for St. 2 3 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 4 ESC presentation the Total cost estimate for St. Lucie and Turkey remained the same 5 but the "Scope not estimated" component had dwindled to \$14 million for St. Lucie, a 6 92% decrease from the original \$182 million and to \$28 million for Turkey Point, an 7 8 86% decrease from the original \$204 million. (OPCPOD1, No. 11, FPL000191 -9 000219) Projects costs had not stabilized and were continuing to increase. At the 10 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 11 12 Turkey Point was \$160.6 million above the original estimate. (OPCPOD1, No. 5, FPL000056 - 000095 and OPCPOD1, No. 12, FPL000424 - 000475) (Exhibit WRJ-13 8 and Exhibit WRJ-9) In June 2009, the allowance for "Scope not estimated" had 14 15 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 16 17 presentation of costs as FPL management attempted to identify and understand the 18 reasons for the cost increases. 19 20 ARE THERE OTHER ASPECTS OF THE JULY 2009 PRESENTATION TO Q. 21 THE ESC THAT ARE SIGNIFICANT? 22. Yes. The July 2009 ESC presentation also reflected the results of the recent efforts A. 23 by the EPU management team to rein in Bechtel's increasing cost estimates. The July 24 2009 ESC presentation also contains an updated feasibility analysis conducted by an

25 FPL analyst (not Dr. Sim) to examine whether the EPU projects remained

economically feasible (using FPL's methodology) at the new higher cost estimates. 1 2 The feasibility analysis in the July 2009 ESC presentation used a combined EPU total 3 cost of \$1.706 billion, compared to the \$1.407 billion used in the original 4 Determination of Need filing and in FPL's 2008 and 2009 NCRC testimony. See page 50 of Exhibit WRJ-9. 5 WHAT HAPPENED AFTER JULY 2009? 6 Q. Upward cost pressures continued, as the August 2009 cost estimate shown in the 7 A. 8 September 2009 ESC presentation increased again from \$1.706 billion to \$1.850 9 billion. From the above presentation demonstrating continued increasing costs 10 throughout the spring and summer of 2009 and the use of the increased cost estimates 11 in the updated feasibility analysis, I conclude that the cost estimate submitted in 12 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 13 have updated the feasibility analysis that it presented at the September 2009 hearing. 14 15 to reflect the increased estimates of capital costs. 16 17 HOW WOULD YOU COMPARE YOUR CONCLUSION WITH THAT OF Q. 18 CONCENTRIC ENERGY ADVISORS, AS EXPRESSED IN ITS JUNE 21, 19 2010, INVESTIGATION REPORT? I reached the same conclusion as Mr. Reed with respect to whether the capital cost 20 А. estimate should have been updated, with one difference. Mr. Reed approached his 21 task from the standpoint of whether FPL adhered to its own internal policies 22 23 regarding, among other things, communications to the Commission. My approach is to assess whether FPL met Commission requirements for submissions in the nuclear 24 cost recovery clause, including the requirement of Rule 25-6.0423 that it provide an 25
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.

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

11 A. No, I do not. Design engineering for the project will not be complete until shortly 12 before the project itself is complete. For example, as of April 18, 2011 design 13 engineering has been completed for only 31% of the Plant Change Modifications. 14 (Response to OPC Interrogatory 50) The logical extension of FPL's assertion is that 15 FPL would need to update its initial estimate of capital costs (formed when little 16 engineering had been done) and adjust the capital cost input to its ongoing economic 17 feasibility analyses only when the project is virtually complete. This approach would 18 frustrate the ability of the Commission to monitor the feasibility of the project over 19 time. Further, when FPL updated capital costs in May 2010, design engineering was 20 only 10% complete.

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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

1		NUMBERS WERE PRELIMINARY AND NOT YET READY TO REPORT
2		TO THE COMMISSION. HOW DO YOU RESPOND?
3	A.	I respond in two ways. First, the July 2009 cost estimates were the result of extensive
4		line by line analyses of the capital costs which included identification and
. 5		quantification of all known reductions in scope. The reductions in scope were
6		quantified and reflected in the revised estimate of capital costs. See page 9 of Exhibit
7		WRJ-9. It is doubtful that additional reductions in scope would be identified at a later
8		date that would have a significant impact on the July 2009 estimate. This is borne out
9		by the fact that FPL increased its estimate of capital costs materially above the July
10		2009 estimate in the following month. Secondly, FPL could have provided the latest
11		cost estimates and informed the Commission of their preliminary nature with a
12		promise to provide the Commission with the latest update when it became more firm.
13		FPL should have informed the Commission of this latest cost estimate.
14	•	· · · · · · · · · · · · · · · · · · ·
15	Q.	FPL SAYS THAT IT DIRECTED ITS UPRATE MANAGERS TO REDUCE
16		COSTS BY "PUSHING BACK" AGAINST BECHTEL. IT SAYS THAT .
17		BECAUSE IT HAS NOT ACCEPTED BECHTEL'S ESTIMATE, IT WAS
18		UNDER NO OBLIGATION TO REGARD THE JULY 25 ESTIMATES AS
19		HAVING SUPERSEDED THE MAY TESTIMONY. WHAT IS YOUR
20		RESPONSE?
21	A.	Again, the July 2009 cost estimates include the results of FPL's initiatives to push
22		back against Bechtel. In the May 2009 and June 2009 presentations, uprate managers
23		laid out a program of steps through which they intended to resolve their challenges to
24		Bechtel's new, higher estimates. The program contemplated a flurry of measures
25		designed to bring closure to the challenges within a 30 day time frame ending in late

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1		June 2009. A table in the implementation section of the July 2009 report for both St.
2		Lucie and Turkey Point presents the results of extensive negotiations with Bechtel
3		that are incorporated in the July 2009 cost estimate. These tables entitled "Bechtel
4		proposal Estimate Changes" show the following cost changes resulting from the
5		negotiations with Bechtel::
6		• Original P50 Submittal;
7		• Most Likely P50;
8		• Most Likely P50 Rev 1;
9		• Reduced Scope Hours;
10	`	• Consolidated Procurement;
11		• Reduced Engineering manhours and Construction.
12		Page 28 of 52 of Exhibit WRI-9 is a bar graph that was part of the presentation to the
13		ESC during the July 2009 meeting. It indicates that FPL's program of challenging
14		Bechtel's numbers resulted in a decrease in Bechtel's estimate of EPC-related costs
15		from the contained in Bechtel's May 12 presentation to by
16		the time the package for the July meeting was prepared. In short, negotiations with
17		Bechtel were far along at the time the July 2009 estimate was developed and
18		meaningful reductions in Bechtel's cost estimate were clearly identified.
19		
20	Q.	FPL HAS ALSO MAINTAINED THAT BECAUSE IT WAS CONSIDERING
21		EITHER SELFPERFORMANCE OR REPLACING BECHTEL WITH A
22		DIFFERENT EPC CONTRACTOR, THE JULY 2009 PRESENTATION WAS
23		TOO PRELIMINARY TO HAVE THE EFFECT OF SUPPLANTING THE
24		MAY 2009 TESTIMONY. DOES THIS CONTENTION PERSUADE YOU

	ĺ		THAT FPL HAD NO OBLIGATION TO UPDATE ITS TESTIMONY BY THE
	2		TIME OF THE SEPTEMBER 2009 HEARING?
	3	А.	No, it does not. In July 2009, Bechtel was the primary EPC contractor and any steps
	4		to self-perform or replace Bechtel were very preliminary. FPL could have qualified
	5		their July 2009 estimate by stating that they were evaluating a self-performing option
	6		or replacing Bechtel. In any event, FPL should have notified the Commission of the
	7.		July 2009 estimate with whatever qualifiers were needed.
	8		
	9	Q.	WOULD REPORTING A HIGHER ESTIMATE OF CAPITAL COSTS HAVE
	10		UNDERMINED FPL'S ABILITY TO NEGOTIATE WITH BECHTEL FOR
	11		THE BENEFIT OF CUSTOMERS?
	12	A. [.]	No. Aside from the fact that the negotiations had borne fruit by July 25, 2009, it is
	13		important to remember that the EPC contract with Bechtel is essentially an agreement
	14		to compensate Bechtel for "time and materials" associated with its services. At issue
	15		at the time was Bechtel's estimates of labor that would be required. While of course
	16	•	FPL's objective properly was and is to require accurate and reasonable estimates,
	17		reporting a higher estimate to the Commission would not jeopardize FPL's ability to
	18		hold Bechtel to only the levels of staffing that would be required to actually perform
•	19		the project as it progressed by supervising Bechtel and reviewing invoices so as to
	20		guard against paying for inefficiencies.
	21		· · · · · ·
	22	Q.	FPL POINTS TO THE FACT THAT ITS PROCESS FOR EVALUATING
	23		CAPITAL COSTS WAS NOT FINISHED UNTIL SHORTLY PRIOR TO THE
	24		MAY 2010 FILING FOR THE FOLLOWING YEAR, AT WHICH TIME IT
	25		PRESENTED ITS FIRST REVISION TO THE ORIGINAL ESTIMATE OF
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1		CAPITAL COSTS. DOES THIS SUPPORT FPL'S CONTENTION THAT
2		THERE WAS NO NEED TO REVISE THE MAY 2009 ESTIMATES DURING
3		THE SEPTEMBER 2009 HEARING?
4	A.	No. FPL has argued that a revision could not be made until design engineering had
5		been completed. At the time of the May 2010 testimony, in which FPL provided a
. 6		revised estimate that increased the original estimate by between \$252 million and
7		\$502 million, by its own account only 10% of the design engineering of the project
8		had been completed. (Testimony of Terry Jones dated May 3, 2010 page 6, lines 8-9
9		and 15 and page 36, line 12)
10		· ·
11	Q.	WHAT IS THE SIGNIFICANCE OF THE UPDATED FEASIBILITY STUDY
12		THAT MANAGERS INCLUDED IN THE JULY 2009 PRESENTATION, AND
13	•	TO WHICH MR. JOHN REED REFERRED IN CONCENTRIC ENERGY
 14		ADVISORS' JUNE 2010 INVESTIGATION REPORT?
15	А.	The fact that the managers of the uprate project asked for and obtained a revised
16		feasibility study taking into account both anticipated capacity increases and increased
17		capital costs reinforces my conclusion that FPL had moved beyond the May 2009
18	·	information.
19		
20	Q.	IN RESPONSES TO OPC DISCOVERY REQUESTS, FPL CONTENDS THAT
. 21		THE PORTION OF THE JULY 2009 PRESENTATION TO THE ESC THAT
22		IS CAPTIONED AS A "FEASIBILITY ANALYSIS" WAS INSTEAD A
23	•	"SENSITIVITY STUDY" OF THE ORIGINAL FEASIBILITY ANALYSIS,
24	•	PERFORMED TO MEASURE THE SENSITIVITY OF THE ORIGINAL TO
25		CHANGES IN CAPITAL COSTS AND MEGAWATT INCREASES. DOES

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. <u>1</u>		THIS CHARACTERIZATION LESSEN THE SIGNIFICANCE OF THE
2		EXERCISE, IN YOUR OPINION?
3	A.	No. It merely means that FPL held constant all of the variables except those for
4		which its most recent information exhibited material changes. That is exactly what I
5		would expect FPL to do with new information regarding higher capital costs and/or
6		increased capacity. It does not matter whether the calculations are labeled an updated
7		feasibility analysis or a sensitivity study-the significance is the same under either
8		designation.
9		
10	Q.	IN YOUR OPINION, SHOULD FPL HAVE PROVIDED THIS REVISED
11		FEASIBILITY INFORMATION TO THE COMMISSION DURING THE
12		SEPTEMBER 2009 HEARING IN ADDITION TO THE REVISED ESTIMATE
13		OF CAPITAL COSTS, EVEN IF THE RESULTS CONTINUED TO
14		INDICATE THE PROJECTS WERE COST-EFFECTIVE UNDER FPL'S
· 15	, -	METHODOLOGY?
- 16	A .	Yes. FPL has an obligation to keep the Commission fully informed with the latest
17	-	available information as the EPU project progresses. This includes material changes
18		in schedule, cost and/or overall feasibility that occur following the regular submission
19		date. In addition to a snap shot in time that these data provide, they also allow the
20		Commission to develop a trend over time which is important in determining the
21		ultimate success of the project.
22		
23	Q.	HAVE YOU SEEN ANY INDICATIONS THAT FPL'S MANAGERS
24		CONTEMPLATED UPDATING THE MAY 2009 TESTIMONY AT ANY
25		POINT PRIOR TO THE SEPTEMBER 2009 HEARING?

1 2 3 4 5 6 7 8 9 10 11 12 13 14	А. Q. А.	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. PLEASE CONTINUE. 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 if
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13 14 15		testimony once the pending challenges to Bechtel's estimates were resolved at the
14		time he wrote it.
、 15		
16	Q.	PLEASE EXPLAIN.
17	А.	In this email, after first alluding to the fact that the Commission Staff had requested
18		copies of all presentations on the uprates to the ESC and the Chief Nuclear Officer,
19		Mr. Kundalkar stated:
· 20 21 22 23 24 25 26 27 28 29 30 31 32		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 midlate June.

7 I believe the document shows that Mr. Kundalkar was concerned at the time that the 8 PSC Staff would observe the disparity between the estimates he included in his May 9 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 10 was writing he regarded the conclusion of the period in which managers were 11 12 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 13 clarified and the disparity between his testimony and presentations to management 14 15 could be addressed.

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

During his deposition, Mr. Kundalkar denied that the memorandum is related to the 18 A. subject of updating the May testimony. He maintained that the higher Bechtel 19. estimates were "unvetted" and referred to the status of design engineering. I am 20 21 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 22 23 intention of updating testimony at the time or changed his mind after he wrote the 24 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 25 September 2009 hearing. 26

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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?

5 A. No.

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7 Q. WHY NOT?

In the first place, I believe FPL had a responsibility to be forthcoming with the 8 A. information. In addition, neither witness was in a position to provide full information 9 in response to questions. This is because FPL did not share the fact of a revised 10 feasibility study containing higher (by \$300 million) July estimates of capital costs, 11 much less the even higher (by \$144 million) August estimate, with Dr. Sim, who 12 sponsored the feasibility study that was based on the May 2009 estimate. Further, 13 FPL did not inform Mr. Kundalkar, who helped present the July data to the ESC 14 shortly before he was assigned to a different position, that the uprate managers had 15 increased the estimate of capital costs again (by approximately \$144 million) in 16 August 2009 before he testified in September 2009. See Exhibits WRJ-12, WRJ-13, 17 and WRJ-11, at pages TR-131-134. 18

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Q. BASED ON YOUR REVIEW AND ANALYSIS, WHAT DO YOU

21 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

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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.

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VII.TURKEY POINT UNITS 6 AND 7

7 Q. HAVE YOU REVIEWED THE STATUS OF TURKEY POINT 6 AND 7 AND

8 THE FPL'S MANAGEMENT OF THIS PROJECT?

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

project at this time.

11

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12 Q. DOES THAT CONCLUDE YOUR TESTIMONY?

13 A. Yes, it does.

William R. Jacobs, Jr. Vice President - Generation Support Services GDS Associates, Inc. Page 1 of 7

EDUCATION: Ph.D., Nuclear Engineering, Georgia Tech 1971 MS, Nuclear Engineering, Georgia Tech 1969 BS, Mechanical Engineering, Georgia Tech 1968

ENGINEERING REGISTRATION: Registered Professional Engineer

PROFESSIONAL MEMBERSHIP: American Nuclear Society

EXPERIENCE:

Dr. Jacobs has over thirty-five years of experience in a wide range of activities in the electric power generation industry. He has extensive experience in the construction, startup and operation of nuclear power plants. While at the Institute of Nuclear Power Operation (INPO), Dr. Jacobs assisted in development of INPO's outage management evaluation group. He has provided expert testimony related to nuclear plant operation and outages in Texas, Louisiana, South Carolina, Florida, Wisconsin, Indiana, Georgia and Arizona. He currently provides nuclear plant operational monitoring services for GDS clients. Dr. Jacobs was a witness in nuclear plant certification hearings in Georgia for the Plant Vogtle 3 and 4 project on behalf of the Georgia Public Service Commission and in South Carolina for the V.C. Summer 2 and 3 projects on behalf of the South Carolina Office of Regulatory Staff. His areas of expertise include evaluation of reactor technology, EPC contracting, risk management and mitigation, project cost and schedule. He is assisting the Florida Office of Public Counsel in monitoring the development of four new nuclear units in the State of Florida, Levy County Units 1 and 2 and Turkey Point Units 6 and 7. He has been selected by the Georgia Public Service Commission as the Independent Construction Monitor for Georgia Power Company's new AP1000 nuclear power plants, Plant Vogtle Units 3 and 4. He has assisted the Georgia Public Service Commission staff in development of energy policy issues related to supply-side resources and in evaluation of applications for certification of power generation projects and assists the staff in monitoring the construction of these projects. He has also assisted in providing regulatory oversight related to an electric utility's evaluation of responses to an RFP for a supply-side resource and subsequent negotiations with short-listed bidders. He has provided technical litigation support and expert testimony support in several complex law suits involving power generation facilities. He monitors power plant operations for GDS clients and has provided testimony on power plant operations and decommissioning in several jurisdictions. Dr. Jacobs represents a GDS client on the management committee of a large coal-fired power plant currently under construction. Dr. Jacobs has provided testimony before the Georgia Public Service Commission, the Public Utility Commission of Texas, the North Carolina Utilities Commission, the South Carolina Public Service Commission, the Iowa State Utilities Board, the Louisiana Public Service Commission, the Florida Public Service Commission, the Indiana

> GDS Associates, Inc., 1850 Parkway Place, Suite 800, Marietta, GA 30067 (770) 425-8100 (770) 426-0303 – Fax Bill.Jacobs@gdsassociates.com

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Regulatory Commission, the Wisconsin Public Service Commission, the Arizona Corporation Commission and the FERC.

A list of Dr. Jacobs' testimony is available upon request.

<u>1986-Present</u> GDS Associates, Inc.

As Vice-President, Dr. Jacobs directs GDS' nuclear plant monitoring activities and has assisted clients in evaluation of management and technical issues related to power plant construction, operation and design. He has evaluated and testified on combustion turbine projects in certification hearings and has assisted the Georgia PSC in monitoring the construction of the combustion turbine projects. Dr. Jacobs has evaluated nuclear plant operations and provided testimony in the areas of nuclear plant operation, construction prudence and decommissioning in nine states. He has provided litigation support in complex law suits concerning the construction of nuclear power facilities.

<u>1985-1986</u> Institute of Nuclear Power Operations (INPO)

Dr. Jacobs performed evaluations of operating nuclear power plants and nuclear power plant construction projects. He developed INPO Performance Objectives and Criteria for the INPO Outage Management Department. Dr. Jacobs performed Outage Management Evaluations at the following nuclear power plants:

- Connecticut Yankee Connecticut Yankee Atomic Power Co.
- Callaway Unit I Union Electric Co.
- Surry Unit I Virginia Power Co.
- Ft. Calhoun Omaha Public Power District
- Beaver Valley Unit 1 Duquesne Light Co.

During these outage evaluations, he provided recommendations to senior utility management on techniques to improve outage performance and outage management effectiveness.

1979-1985 Westinghouse Electric Corporation

As site manager at Philippine Nuclear Power Plant Unit No. 1, a 655 MWe PWR located in Bataan, Philippines, Dr. Jacobs was responsible for all site activities during completion phase of the project. He had overall management responsibility for startup, site engineering, and plant completion departments. He

William R. Jacobs, Jr.	GDS Associates, Inc.
Vice President - Generation Support Services	Page 3 of 7

managed workforce of approximately 50 expatriates and 1700 subcontractor personnel. Dr. Jacobs provided day-to-day direction of all site activities to ensure establishment of correct work priorities, prompt resolution of technical problems and on schedule plant completion.

Prior to being site manager, Dr. Jacobs was startup manager responsible for all startup activities including test procedure preparation, test performance and review and acceptance of test results. He established the system turnover program, resulting in a timely turnover of systems for startup testing.

As startup manager at the KRSKO Nuclear Power Plant, a 632 MWE PWR near Krsko, Yugoslavia, Dr. Jacobs' duties included development and review of startup test procedures, planning and coordination of all startup test activities, evaluation of test results and customer assistance with regulatory questions. He had overall responsibility for all startup testing from Hot Functional Testing through full power operation.

<u> 1973 - 1979</u>

As Startup and Operations and Maintenance Advisor to Korea Electric Company during startup and commercial operation of Ko-Ri Unit 1, a 595 MWE PWR near Pusan, South Korea, Dr. Jacobs advised KECO on all phases of startup testing and plant operations and maintenance through the first year of commercial operation. He assisted in establishment of administrative procedures for plant operation. As Shift Test Director at Crystal River Unit 3, an 825 MWE PWR, Dr. Jacobs directed and performed many systems and integrated plant tests during startup of Crystal River Unit 3. He acted as data analysis engineer and shift test director during core loading, low power physics testing and power escalation program.

As Startup engineer at Kewaunee Nuclear Power Plant and Beaver Valley, Unit 1, Dr. Jacobs developed and performed preoperational tests and surveillance test procedures.

<u>1971 - 1973</u> Southern Nuclear Engineering, Inc.

NUS Corporation

Dr. Jacobs performed engineering studies including analysis of the emergency core cooling system for an early PWR, analysis of pressure drop through a redesigned reactor core support structure and developed a computer model to determine tritium build up throughout the operating life of a large PWR.

SIGNIFICANT CONSULTING ASSIGNMENTS:

GDS Associates, Inc., 1850 Parkway Place, Suite 800, Marietta, GA 30067 (770) 425-8100 (770) 426-0303 – Fax Bill.Jacobs@gdsassociates.com

William R. Jacobs, Jr. Vice President - Generation Support Services GDS Associates, Inc. Page 4 of 7

<u>Georgia Public Service Commission</u> – Selected as the Independent Construction Monitor to assist the GPSC staff in monitoring all aspects of the design, licensing and construction of Plant Vogtle Units 3 and 4, two AP1000 nuclear power plants.

<u>Georgia Public Service Commission</u> – Assisted the Georgia Public Service Commission Staff and provided testimony related to the evaluation of Georgia Power Company's request for certification to construct two AP1000 nuclear power plants at the Plant Vogtle site.

<u>South Carolina Office of Regulatory Staff</u> – Assisted the South Carolina Office of Regulatory Staff in evaluation of South Carolina Electric and Gas' request for certification of two AP1000 nuclear power plants at the V.C. Summer site.

<u>Florida Office of Public Counsel</u> – Assists the Florida Office of Public Counsel in monitoring the development of four new nuclear power plants in Florida including providing testimony on the prudence of expenditures.

<u>East Texas Electric Cooperative</u> – Represents ETEC on the management committee of the Plum Point Unit 1 a 650 Mw coal-fired plant under construction in Osceola, Arkansas and represents ETEC on the management committee of the Harrison County Power Project, a 525 Mw combined cycle power plant located near Marshall, Texas.

<u>Arizona Corporation Commission</u> – Evaluated operation of the Palo Verde Nuclear Generating Station during the year 2005. Included evaluation of 11 outages and providing written and oral testimony before the Arizona Corporation Commission.

<u>Citizens Utility Board of Wisconsin</u> – Evaluated Spring 2005 outage at the Kewaunee Nuclear Power Plant and provided direct and surrebuttal testimony before the Wisconsin Public Service Commission.

<u>Georgia Public Service Commission</u> - Assisted the Georgia PSC staff in evaluation of Integrated Resource Plans presented by two investor owned utilities. Review included analysis of purchase power agreements, analysis of supply-side resource mix and review of a proposed green power program.

<u>State of Hawaii, Department of Business, Economic Development and Tourism</u> – Assisted the State of Hawaii in development and analysis of a Renewable Portfolio Standard to increase the amount of renewable energy resources developed to meet growing electricity demand. Presented the results of this work in testimony before the State of Hawaii, House of Representatives.

William R. Jacobs, Jr.	GDS Associates, Inc.
Vice President - Generation Support Services	Page 5 of 7

<u>Georgia Public Service Commission</u> - Assisted the Georgia PSC staff in providing oversight to the bid evaluation process concerning an electric utility's evaluation of responses to a Request for Proposals for supply-side resources. Projects evaluated include simple cycle combustion turbine projects, combined cycle combustion turbine projects and co-generation projects.

<u>Millstone 3 Nuclear Plant Non-operating Owners</u> – Evaluated the lengthy outage at Millstone 3 and provided analysis of outage schedule and cost on behalf of the non-operating owners of Millstone 3. Direct testimony provided an analysis of additional post-outage O&M costs that would result due to the outage. Rebuttal testimony dealt with analysis of the outage schedule.

<u>H.C. Price Company</u> – Evaluated project management of the Healy Clean Coal Project on behalf of the General Contractor, H.C. Price Company. The Healy Clean Coal Project is a 50 megawatt coal burning power plant funded in part by the DOE to demonstrate advanced clean coal technologies. This project involved analysis of the project schedule and evaluation of the impact of the owner's project management performance on costs incurred by our client.

<u>Steel Dynamics, Inc.</u> – Evaluated a lengthy outage at the D.C. Cook nuclear plant and presented testimony to the Indiana Utility Regulatory Commission in a fuel factor adjustment case Docket No. 38702-FAC40-S1.

<u>Florida Office of Public Counsel</u> - Evaluated lengthy outage at Crystal River Unit 3 Nuclear Plant. Submitted expert testimony to the Florida Public Service Commission in Docket No. 970261-EI.

<u>United States Trade and Development Agency</u> - Assisted the government of the Republic of Mauritius in development of a Request for Proposal for a 30 MW power plant to be built on a Build, Own, Operate (BOO) basis and assisted in evaluation of Bids.

Louisiana Public Service Commission Staff - Evaluated management and operation of the River Bend Nuclear Plant. Submitted expert testimony before the LPSC in Docket No. U-19904.

<u>U.S. Department of Justice</u> - Provided expert testimony concerning the in-service date of the Harris Nuclear Plant on behalf of the Department of Justice U.S. District Court.

<u>City of Houston</u> - Conducted evaluation of a lengthy NRC required shutdown of the South Texas Project Nuclear Generating Station.

<u>Georgia Public Service Commission Staff</u> - Evaluated and provided testimony on Georgia Power Company's application for certification of the Intercession City Combustion Turbine Project -Docket No. 4895-U.

> GDS Associates, Inc., 1850 Parkway Place, Suite 800, Marietta, GA 30067 (770) 425-8100 (770) 426-0303 – Fax Bill.Jacobs@gdsassociates.com

William R. Jacobs, Jr. Vice President - Generation Support Services GDS Associates, Inc. Page 6 of 7

<u>Seminole Electric Cooperative, Inc.</u> - Evaluated and provided testimony on nuclear decommissioning and fossil plant dismantlement costs - FERC Docket Nos. ER93-465-000, <u>et al</u>.

<u>Georgia Public Service Commission Staff</u> - Evaluated and prepared testimony on application for certification of the Robins Combustion Turbine Project by Georgia Power Company - Docket No. 4311-U.

<u>North Carolina Electric Membership Corporation</u> - Conducted a detailed evaluation of Duke Power Company's plans and cost estimate for replacement of the Catawba Unit 1 Steam Generators.

<u>Georgia Public Service Commission Staff</u> - Evaluated and prepared testimony on application for certification of the McIntosh Combustion Turbine Project by Georgia Power Company and Savannah Electric Power Company - Docket No. 4133-U and 4136-U.

<u>New Jersey Rate Counsel</u> - Review of Public Service Electric & Gas Company nuclear and fossil capital additions in PSE&G general rate case.

<u>Corn Belt Electric Cooperative/Central Iowa Power Electric Cooperative</u> - Directs an operational monitoring program of the Duane Arnold Energy Center (565 Mwe BWR) on behalf of the non-operating owners.

<u>Cities of Calvert and Kosse</u> - Evaluated and submitted testimony of outages of the River Bend Nuclear Station - PUCT Docket No. 10894.

<u>Iowa Office of Consumer Advocate</u> - Evaluated and submitted testimony on the estimated decommissioning costs for the Cooper Nuclear Station - IUB Docket No. RPU-92-2.

<u>Georgia Public Service Commission/Hicks, Maloof & Campbell</u> - Prepared testimony related to Vogtle and Hatch plant decommissioning costs in 1991 Georgia Power rate case - Docket No. 4007-U.

<u>City of El Paso</u> - Testified before the Public Utility Commission of Texas regarding Palo Verde Unit 3 construction prudence - Docket No. 9945.

<u>City of Houston</u> - Testified before Texas Public Utility Commission regarding South Texas Project nuclear plant outages - Docket No. 9850.

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Vice President - Generation Support Services	Page 7 of 7

<u>NUCOR Steel Company</u> - Evaluated and submitted testimony on outages of Carolina Power and Light nuclear power facilities - SCPSC Docket No. 90-4-E.

<u>Georgia Public Service Commission/Hicks, Maloof & Campbell</u> - Assisted Georgia Public Service Commission staff and attorneys in many aspects of Georgia Power Company's 1989 rate case including nuclear operation and maintenance costs, nuclear performance incentive plan for Georgia and provided expert testimony on construction prudence of Vogtle Unit 2 and decommissioning costs of Vogtle and Hatch nuclear units - Docket No. 3840-U.

<u>Swidler & Berlin/Niagara Mohawk</u> - Provided technical litigation support to Swidler & Berlin in law suit concerning construction mismanagement of the Nine Mile 2 Nuclear Plant.

Long Island Lighting Company/Shea & Gould - Assisted in preparation of expert testimony on nuclear plant construction.

North Carolina Electric Membership Corporation - Prepared testimony concerning prudence of construction of Carolina Power & Light Company's Shearon Harris Station - NCUC Docket No. E-2, Sub537.

<u>City of Austin, Texas</u> - Prepared estimates of the final cost and schedule of the South Texas Project in support of litigation.

<u>Tex-La Electric Cooperative/Brazos Electric Cooperative</u> - Participated in performance of a construction and operational monitoring program for minority owners of Comanche Peak Nuclear Station.

<u>Tex-La Electric Cooperative/Brazos Electric Cooperative/Texas Municipal Power Authority</u> (Attorneys - Burchette & Associates, Spiegel & McDiarmid, and Fulbright & Jaworski) -Assisted GDS personnel as consulting experts and litigation managers in all aspects of the lawsuit brought by Texas Utilities against the minority owners of Comanche Peak Nuclear Station.

James P. McGaughy, Jr.	GDS Associates, Inc.
	Page 1 of 8

EDUCATION: M.S., Mechanical Engineering, Stanford University, 1969 U.S. Navy Nuclear Power Training Program, 1964-65 B.S., Electrical Engineering, MIT, 1964

ENGINEERING REGISTRATION: Registered Professional Engineer, Retired

Mr. McGaughy and five others founded GDS Associates, Inc. in 1986. Mr. McGaughy retired from GDS as an officer, board member and stockholder in May 2006. Since that time he has worked for GDS on various generation related consulting assignments on a part time basis.

EXPERIENCE:

While Mr. McGaughy was full time at GDS, he directed the power generation services function at GDS Associates, Inc. He has more than 45 years experience in the power generation field in the areas of licensing, design, construction, start-up, operation, and maintenance of nuclear and fossil-fired power plants. Mr. McGaughy has worked with top utility management to solve problems on a wide range of power generation issues. He has successfully managed extremely large and complex generation projects, both nuclear and fossil, which required the rigorous maintenance of project schedules and quality. He has performed studies concerning cogeneration projects involving unit dispatch and FERC operating and efficiency standards. Mr. McGaughy has provided testimony before the Texas Public Utility Commission, Public Utility Commission of Ohio, South Carolina Public Service Commission, Georgia Public Service Commission, Hawaii Public Utility Commission, New Jersey Board of Regulatory Commissioners, Michigan Public Utility Commission, Wisconsin Public Service Commission and FERC. He has performed work concerning over 30 nuclear units and 24 fossil-fired steam units as well as numerous combustion turbine and combined cycle units.

Specific Experience Includes:

2006-Present GDS Associates, Inc.

As an Executive Engineer, Mr. McGaughy has worked on various power plant related projects.

1986-2006 GDS Associates, Inc.

James P. McGaughy, Jr.	GDS Associates, Inc.
	Page 2 of 8

As Vice President and Secretary, Mr. McGaughy served as head of the Generation Services Department of GDS. GDS has provided construction and operations monitoring program at five nuclear units and six coal-fired units for minority owners. GDS has provided expert witness and litigation support in lawsuits involving six nuclear units. Mr. McGaughy also has been responsible for prudence, construction monitoring and litigation support efforts at numerous other nuclear units and for development of a nuclear performance standard program for the Georgia Public Service Commission. He has testified on combustion turbine construction projects in certification proceedings and has testified on dispatch, reliability, avoided cost and other issues concerning cogeneration projects.

<u>1984-1986</u> Southern Engineering Company

As Director of Generation Services, Mr. McGaughy conducted construction and operations monitoring for clients at power plants throughout the United States. In addition, Mr. McGaughy prepared testimony for various rate cases on generation matters at FERC and state commissions. He provided assistance to clients in all generation matters including contract administration and litigation support.

<u>1980-1984</u> Mississippi Power and Light Company

Mr. McGaughy served as Vice President, Nuclear (1983-84) and Assistant Vice President, Nuclear Production (1980-82). He was responsible for all aspects of construction and operation of a multi-billion dollar power generation facility. In this capacity he hired and trained the nuclear power plant staff of over 500 people, including 29 licensed operators and numerous experienced utility managers. Mr. McGaughy also established a unique design engineering group which grew to over 125 people and had overall responsibility for interface with the Nuclear Regulatory Commission and all contractors on the project. During this tenure, cost and schedule performance was better than at any other similar plant (G.E. Boiling Water Reactor, BWR-6 design).

<u>1973-1980</u> Mississippi Power and Light Company

Mr. McGaughy served as Director of Power Production (1978-80). In this capacity he was responsible for all power production related activities including construction, operation, engineering, maintenance, licensing, nuclear safety, staffing, and training. He prepared and administered annual personnel and operating budgets for 600 people and

James P. McGaughy, Jr.

GDS Associates, Inc. Page 3 of 8

more than \$50 million, and an annual capital budget of \$280 million. He also established a formal screening program for hiring craft personnel, established a formal preventive maintenance program, and reorganized his department based on job performance. He served as project manager for 2-unit, 1,600 MW coal project.

Mississippi Power and Light Company

Mr. McGaughy served as Nuclear Project Manager (1976-78) and Assistant Project Manager (1973-75). He was responsible for forming and managing an organization to control the prime contractor on a \$4 billion construction project. He began the formation of plant staff organization. He was also responsible for relations with the Nuclear Regulatory Commission and the prime contractor (Bechtel). The construction permit was awarded in record time.

<u>1971-1973</u> Middle South Services, Inc.

Mr. McGaughy served as a nuclear engineer on the holding company staff responsible for economic and engineering studies including the feasibility evaluation for Grand Gulf Nuclear Station. He performed nuclear fuel and uranium buying functions. He also performed generation-mix studies.

<u>1969 - 1971</u> Arkansas Power and Light Company

Mr. McGaughy was responsible for nuclear fuel procurement and performed the licensing work including the preparation of the Safety Analysis Report for Arkansas Nuclear One, Unit 2.

1964-1968 U.S. Navy

Served as an engineering officer on nuclear propulsion power plants aboard navy submarines.

SIGNIFICANT CONSULTING ASSIGNMENTS:

<u>Georgia Public Service Commission/Georgia Power Co.</u>—Assisting in GDS role as Independent Construction Monitor a Vogtle 3&4, Georgia Power's new nuclear projects.

James P. McGaughy, Jr.	GDS Associates, Inc.
	Page 4 of 8

<u>Public Counsel-State of Florida</u>—Reviewed construction costs on Florida Power & Light and Florida Progress new nuclear plant projects and uprate projects

<u>Pacific Gas & Electric Company</u> – Performed technical analyses of two different cogeneration plants to determine if projects had met FERC and state efficiency and operating standards.

<u>Niagara Mohawk Power Corporation/Swidler & Berlin</u> – Assisting in FERC proceeding to set new rates for disqualified former QF.

<u>Niagara Mohawk Power Corporation/Swidler & Berlin</u> – Prepared extensive technical analysis for filing in federal court and at FERC concerning efficiency and operating standards of cogeneration facility in support of motion to revoke QF certification

<u>Attorney General, State of Michigan</u> – Prepared analysis and testimony concerning power plant availability and system dispatch relating to the Midland cogeneration project in Consumers Power fuel plan case.

<u>Attorney General, State of Michigan</u> – Prepared analysis and testimony concerning purchased power costs relating to the Midland cogeneration project in Consumers Power fuel reconciliation case.

<u>Attorney General, State of Michigan</u> – Prepared analysis and testimony concerning avoided costs, PURPA rates, reserve margins, plant availability and dispatchability in MCV cogeneration facility settlement case. U-10127.

Attorney General, State of Michigan – Analysis and testimony concerning Consumers' application of requirements of order in Case No. U-10127 relating to the Midland cogeneration project.

<u>North Carolina Electric Membership Cooperative</u> – Performed due diligence review of management for a 3-site, 1,200 MW, peaking project. Reviewed management site selection, fuel, equipment selection, environmental, contracting and other aspects.

<u>VECO Alaska, Inc.</u> – Served as construction project management expert witness for EPC contractor in lawsuit concerning construction overruns in a turnkey cogeneration project in Alaska. Served as witness in successful mediation.

James P. McGaughy, Jr.	GDS Associates, Inc.			
	Page 5 of 8			

<u>H.C. Price Construction Company</u> – Provided detailed analysis and mediation presentations concerning construction project management in case involving construction contractor and owner (State of Alaska) of a coal-fired plant in Alaska.

<u>Rusk County, Texas Rural Electric Cooperative/Richard Balough</u> – Testified before the Texas Public Utility Commission concerning coal-fired plant station electric service in territorial dispute with Texas Utilities.

<u>Sam Rayburn G&T</u> – Ongoing operational monitoring program concerning client's interest in Nelson 6 Coal Station operated by Gulf States Utilities.

<u>Kamo Electric Cooperative</u> – Operational monitoring program for client's minority interest in GRDA Unit 2 Coal Fired Station.

<u>Northeast Texas Electric Cooperative</u> – Ongoing construction monitoring and operational monitoring program concerning NTEC's interest in Pirkey Coal Station operated by Southwestern Electric Power Company and Dolet Hills Station operated by Central Louisiana Electric Company.

<u>Sawnee and Coweta/Fayette Electric Membership Cooperatives</u> – Served as Owner's project monitor on Sewell Creek Combustion Turbine Plant, Doyle Combustion Turbine Project, Chattahoochee Combined Cycle Project and Talbot County Combustion Turbine Project.

<u>Northeast Texas Electric Cooperative</u> – Served as Owner's representative on Project Management Committee for design, construction and operation of 500Mw combined cycle plant.

<u>U.S. Department of Justice</u> – Served as expert witness in two tax cases involving investment tax credits for nuclear fuel.

<u>Blue Ridge Power Agency</u>—Advised management concerning participation in new coalfired power plant projects.

<u>Steel Dynamics, Inc.</u> – Analysis of imprudence and replacement power costs at D.C. Cook Plant.

James P. McGaughy, Jr.	GDS Associates, Inc.
· · · · · · · · · · · · · · · · · · ·	<u>Page 6 of 8</u>

<u>Corn Belt Power Cooperative</u> – Performed review of available options for board of directors with recommendations for future plan of action.

.<u>East Texas Electric Cooperative</u> – Assisted cooperative in negotiating steam and electric service contract with industrial customer.

<u>Georgia Public Service Commission Staff</u> – Testified before the Georgia Public Service Commission recommending that a nuclear performance standard be implemented in the State of Georgia. The Commission implemented the recommended standard.

<u>City of El Paso</u> – Testified before the Public Utility Commission of Texas regarding Palo Verde operations and maintenance expenses.

<u>City of El Paso</u> – Testified before the Public Utility Commission of Texas regarding valuation of Palo Verde power plant and other merger issues.

<u>City of Homestead, Florida/Spiegel & McDiarmid</u> – Assisted City in lawsuit regarding DeLaval Diesel-Generators. Prepared expert testimony and gave major deposition on subject before favorable settlement.

<u>El Paso Community College/Law offices of Jim Boyle</u> – Prepared testimony concerning level of Palo Verde Nuclear Station operation and maintenance costs requested by El Paso Electric. Analysis was performed on bases of comparative studies and on specific analysis of cost filed by El Paso Electric.

<u>Old Dominion Electric Cooperative</u> – Prepared testimony filed at FERC concerning prudent levels of coal inventory for inclusion Virginia Power working capital.

Long Island Lighting Company/Shea & Gould – Prepared expert testimony on nuclear plant construction.

<u>Ohio Public Service Commission</u> – Prepared testimony related to decommissioning costs of Toledo Edison's Davis-Besse Nuclear Station.

<u>Georgia Public Service Commission/Hicks, Maloof & Campbell</u> – Assisted Georgia Public Service Commission staff and attorneys in many aspects of Georgia Power Company's 1989 rate case including analysis of service company charges, construction prudence of Vogtle Unit 2, decommissioning costs of Vogtle and Hatch nuclear units,

James P. McGaughy, Jr.

GDS Associates, Inc. Page 7 of 8

prepared expert testimony on operation and maintenance costs for Hatch and Vogtle nuclear units, prepared expert testimony on Performance Incentive Plan for Georgia Power nuclear units.

<u>Georgia Public Service Commission/Hicks, Maloof & Campbell</u> – Prepared testimony related to Vogtle and Hatch plant operations and maintenance costs in 1991 Georgia Power rate case.

<u>Georgia Public Service Commission Staff</u> – Prepared testimony concerning certification of McIntosh Units, Warner Robins Units, Intercession City Unit and Florida Power Corporation Power Purchase (three separate dockets)

<u>City of Houston</u> – Testified before Texas Public Utility Commission regarding South Texas Project operation and maintenance expenses.

<u>Sam Rayburn G&T</u> – Prepared testimony before Texas Public Utility Commission concerning certificate of convenience and necessity for co-op purchase of 38 mw interest in an existing coal-fired plant.

<u>Aetna Insurance Company/Dickson, Carlson & Campillo</u> – Assisted attorneys in analysis of Southern California Edison claims of property damage and replacement power costs. Prepared written analyses used in achieving favorable settlements for clients.

<u>East Texas Electric Cooperative</u> – Performed economic and technical feasibility analyses on hydro and thermal generation alternatives.

<u>Allegheny Electric Power Cooperative</u> – Assisted co-op in review of various financial and technical issues of Susquehanna Nuclear Station.

<u>Saluda River Electric Cooperative</u> – Assisted co-op in review of technical issues including decommissioning and minimum net dependable capability ratings for the co-op's minority interest in Catawba Nuclear Station operated by Duke Power Company.

<u>City of Midland, Michigan</u> – Assisted city in tax assessment case concerning Midland Nuclear Plant with Consumer's Power Company.

<u>City of Wallingford, Connecticut</u> – Reviewed decommissioning costs of Millstone Nuclear Units 1, 2, and 3 in CP&L rate case at FERC.

James P. McGaughy, Jr.

GDS Associates, Inc. Page 8 of 8

<u>Nucor Steel/Ritts, Brickfield & Kaufman</u> – Prepared testimony concerning prudence of construction of Carolina Power & Light Company's Sheron Harris Station.

City of Austin, Texas - Review of cost and schedule of South Texas Nuclear Plant.

<u>Sam Rayburn Municipal Power Authority</u> – Performed operational monitoring program relative to the client's minority interest in Nelson 6 Coal Station operated by Gulf States Utilities.

<u>Tex-La Electric Cooperative/Brazos Electric Cooperative</u> – Conducted construction and operational monitoring program for minority owners of Comanche Peak Nuclear Station.

<u>Tex-La Electric Cooperative/Brazos Electric Cooperative/Texas Municipal Power</u> <u>Authority (Attorneys - Burchette & Associates, Spiegel & McDiarmid, and Fulbright &</u> <u>Jaworski)</u> – Assisted attorneys as consulting experts and litigation managers in all aspects of the lawsuit brought by Texas Utilities against the minority owners of Comanche Peak Nuclear Station.

<u>New Jersey Rate Counsel</u> – Review of Public Service Electric & Gas Company nuclear and fossil O&M costs and capital additions in PSE&G general rate case.

Docket No. 110009-EI William R. Jacobs, Jr. Exhibit WRJ(FPL)-3 FPL Response to OPC Interrogatory No. 85 Page 1 of 1

Florida Power & Light Company Docket No. 110009-El OPC's Eighth Set of Interrogatories Interrogatory No. 85 Page 1 of 1

Q.

In response to OPC's Interrogatory No. 55, FPL states that it has not performed a breakeven cost calculation for the EPU project. Please explain why FPL has not performed a breakeven cost calculation for the EPU project, including an explanation of why this analysis was conducted for the Turkey Point 6 & 7 project but not for the EPU project.

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It is not necessary to perform a breakeven cost calculation in order to evaluate a potential generating unit option. FPL typically evaluates generating unit options using the same cumulative present value of revenue requirements (CPVRR) approach that is being used to evaluate the EPU project. This approach has most recently been used by FPL to evaluate the West County Energy Center units 1-3, the Cape Canaveral modernization project, and the Riviera modernization project; and it is appropriate for the purpose of evaluating the EPU project.

In its need filing for the Turkey Point 6 & 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. For example, at the time of the need filing, no technology had yet been selected (and, therefore, the corresponding incremental capacity was not known), the permitting time was uncertain, and the in-service dates were uncertain. The combination of the long lead times for the project, and the greater number of uncertainties such as these, led FPL to develop and utilize a breakeven cost calculation approach in evaluating the project. FPL believes that it is still appropriate to utilize this approach for evaluating the long-term Turkey Point 6 & 7 project. However, as FPL has stated a number of times in the NCRC dockets, in later years, as more information becomes available regarding the cost and other aspects of the new nuclear units, another analytical approach may emerge as more appropriate.



Bechtel has struggled with meeting pre-outage milestones. for design modifications requiring increased focus and management attention

Design <u>Pre-outage Milestones</u>

- Delay with Design may impact downstream Work Order planning
 - Recovery Plans have been established
 - Work Order Planning has proceeded for those portions of the design that will not change
 - Daily Issue Meetings to review status and schedules to address hard spots and facilitate communication
- Executive Management meetings to address issue

With the increased management attention and focus Bechtel is expected to mitigate the impacts Slide Indicating





36 Proprietary & Confidential Business Information. Information is based on preliminary engineering





FPL 000104 NCR-11

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

ICDR 1.6b-3 EPU

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Exhibit WR. May 2009 E

ocket No; 110009

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Executive Summary

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PSL/PTN Executive Summary

	Issues .	Impact / Plan		
1	Nuclear Cost	- Over 200 Interrogatories and data requests responded to on time	3	
	Recovery	- FPSC Audit of Project Controls Completed - Sat		
		- Final Testimony Completed - 5/1/09		
	à		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	ł	•
			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	2a 1	Will Exhi May
			Page 12	iam I bit V 2009
4	Scope	Performing Scope Validation for Separate & Apart	ç	K Ja ESO
			Page 21	EPL)
5	Bechtel Staffing	Bechtel preliminary estimate greater than indicative bid; refining each and developing Level 1 (Best Case, Worst Case, and P50)	stimates	Jr.)-7 eting Pr
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FPL 000106 NCR-11

Cost and Budget Summary

Saint Lucie

Cost Category	Proforma	4/1/2009	5/1/2009	Source of Cost Estimate	• •
المراجع ا	Budget \$MM	Forecast \$MM	Forecast \$MM		
Engineering	\$100	\$108	\$108	100% Contracts and Staff	5 1 2
Materials	\$269	\$257	\$257	77% Contracts	ł
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	· · · · · · · · · · · · · · · · · · ·	
**************************************		P10	¢10	FPL Estimate	
T&D Estimate	\$25	\$12	- φ10 (¢cno		
Total	\$682	\$682 *	460 2	* corrected	Dock Willi Exhil May Page
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Cost and Budget Summary

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EPU Budget Details - St. Lucie

100%	4/1/2009	5/1/2009		T i
Engineering	\$MM	\$MM	and the construction of the second	
Engineering & Staff			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)	
4	108.3	108.3.]
:77%	-] · [
Materials		1		
Turbine & Generator Components			Awarded - FP - Siemens	1
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		10 mg mast pr war	Awarded - FP- Flowserve	[.
MSR, HT Exchangers			Awarded - FP - TEI	
Misc., Cntrl Rm, LEFM, Circ Wtr pp			RFP bid in review (Awarded LEFIVI)	ł.
Misc. Materials			Awarded - Bechtel	
	257.0	257.0	- - 	
<u>88%</u>			الم المركز ال	ag ag
Implementation		4	a (1999-1999)	ian 50
Turbine & Generators	-		Final negotiations in progress - Siemens	of 3 WR
S/G Mods			N/A	^o ESU
Main Transformers			Awarded - T&M - Bechtel (E&C Scope)	
FW Heaters	_ <u></u>		Awarded - T&M - Bechtel (E&C Scope)	
Condensate Pumps & Motors			Awarded - 1&M - Bechtel (E&C Scope)	
FW Pumps & Motors			Awarded - 1&M - Bechtel (E&C Scope)	
Mok, Condenser, Valves			Awarded - 1 &IVI - Bechtel (E&C Scope)	ese
WISCONDER BEST, LEFINI, COTTI RM, CI			Awarded - I &IVI - Bechtel (Hast Scope)	i i i i i i i i i i i i i i i i i i i
Outage Ext.			FFL estimate	itio
185%	229.6	229.6		
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Cost and Budget Summary

Turkey Point

Cost Category	Proforma	4/1/2009	5/1/2009	Source of Cost Estimate
	Budget \$MM	Forecast \$MM	Forecast \$MM	
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	ه هم داده در از مربع در مربع در از مربع در از مربعه در از مربع در از م
مارونه مارونه مارونه مارونه المرونه المرونه بالمرونه والمرونه والمرونه والمرونه والمرونه والمرونه والمرونه وال		2 19		FPL Estimate
T&D Estimate	\$20	\$20	\$24	•
Total .	\$770	\$770	\$770	
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Bocket No: 110009-EF
 William R. Jacobs, Jr.
 Exhibit WRJ(FPL)-7
 May 2009 ESC Meeting Presentation
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FPL 000109 NCR-11

Cost and Budget Summary

EPU BUQ	•	:			
100%	4/1/2009	5/1/2009		• • •	
Engineering	\$ MM	\$ MM		-	
Engineering & Staff]		Awarded - T&M - FPL and Contractor	S	
NSSS Analysis for LAR		· .	Awarded - T&M - Westinghouse		2
BOP Analysis for LAR			Awarded - T&M - SWEC		• :
Modification Engineering			Awarded - T&M - Bechtel		2
	114.6	114.6			
75%				*	•
Materials					
Turbine Generator & Components			Awarded - FP - Siemens		i,
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	Ĩ		Bid Evaluation in Progress		
FW Pump & Motors			Bid Evaluation in Progress		7
MSR, Condenser			Awarded - FP - TEI		1
Valves			FPL estimate		:
TBCW and Cont Cooling HTX (4)		dente abbeita miti	FPL estimate		•
Misc. Materials			Awarded - Bechtel		Ś
	242.7	242.8			
71%				and a sent to be offer	
Implementation					Page Page
Turbine Generator & Components		and the First	Final negotiations in progress - Sieme	эпs	vy 2 vy 2
S/G Mods	<u> </u>		FPL estimate		e of the th
Misc. Przr Lvi, Rx Hd, Ontri Rm	·····		FPL estimate		
Main Transformers			Final negotiations in progress - T&D I	<u>Dept</u>	SC Tage Ho
FW Heaters			Awarded - T&M - Bechtel		M PL 60
Condensate Pumps & Motors			Awarded - T&M - Bechtel		
FW Pump & Motors	• •	··	Awarded - T&M - Bechtel		
MSR, Condenser, Valves	·		Awarded - T&M - Bechtel		P.
			FPL estimate	+ + يوجوه دانه (بردوني)	ese
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FPL 000110 NCR-11

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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 beind 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	Begittel total staffing and se associated frampitate 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	 Rod Control Phase 2 -4 will be evaluated post spring Outage 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 1.66-3 EPU	2009 Budget for Engineerin 2009 YTD Budget for Eng. 3 2009 YTD Actual for Eng. 8	g & Staff: \$ 54.5 MM & Staff: \$ 21.1 MM & 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 001165		

Docket No. 110009-EF
William R. Jacobs, Jr.
Exhibit WRJ(FPL)-7
May 2009 ESC Meeting Presentation .
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Project Dashboard-PTN

	LAR Submittals	Mod Packages (9 Month Milestone)	Preps & Plans (includes long lead Material delivery)	Execution	" Bha Gha 24 di e
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 	and the second s
Contracts	Major Contracts issued for LAR support	Contracts issued for Mod Engineering	Contract issued to Bechtel	Contract issued to Bechtel	- 1
Staffing & Vendor Support	<u>W</u> 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	Beontelfotal staffing and associated ramp rate greater than proposal review in progress 1	Implementation team on site and planning milestones met	r de vandelagen til er
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)	Docket No. 1100 William R. Jaco Exhibit WRJ(FI May 2009 ESC I Page 9 of 30
Costs	2009 Budget for Engineering 2009 YTD Budget for Eng. & 2009 YTD Actual for Eng. & \$	& Staff: \$ 56.5 MM Staff: \$ 19.3 MM Staff: \$ 14.4 MM	2009 Budget for Mtls & Imple 2009 YTD Budget for Mtls & 2009 YTD Actual for Mtls & I	009-EI · ··· bs, Jr. PL)-7 Meeting Pr	
ICDR 1.65-3 EPU			- -	001166	resentation

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Plans and Targets

Saint Lucie

		PROF	ORMA	FORECAST		
		U-1	U-2	U-1	U-2	
•						ŀ
LAR Submittal		9/01/09	9/01/09	9/30/09	1/31/10	
						Ι.
1 st Outage		1				1
Duration	麣					5
	糭					3
						ł
2 nd Outage	龖					1 4
Duration				(()		ς
	影					6
						-
In Service Date		October	April	December	June	
III OCI VICE Date		2011	2012	2011	2012	
	鼮			•		
MWE	國	103	103	129 °	<u>136 °</u>	

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 EPU5 MWe based on Siemens heat balance (contract target) - designs not final

Longer duration Outages have been included in the business model

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Villiam R. Jaco Exhibit WRJ(F May 2009 ESC

Meeting Presentation

10 of 30

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Plans and Targets `

	PROF	ORMA	FORECAST			
	U-3	U-4	U-3	U-4		
LAR Submittal	9/01/09	9/01/09	6/30/10 ⁵	6/30/10 ^{\$}		
1 st Outage						
Duration			1000 A			
		<u>. </u>		<u> </u>		
2 nd Outage						
Duration						
In Service Date	April 2012	October 2012	May 2012	December 2012		
MWE	104	104	118 ⁴	118 4		

Turkey Point

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

 ${\rm ICDR}$ 1.6b-3 ${\rm EPU}^{\rm 5}$ 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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EPU LAR - PSL

FPL 000114

NCR-11

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

KEDR 1.66-9 FAREVA working LBLOCA runs - challenging schedule to completee

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NCR-11 EPU LAR – PTN

FPL 000115

- 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 (OTAT, OPAT Trips)

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13

100 A 1. Replacing PZR. Pressure gauges with digital to gain operating margin

Bechtel Integration

FPL 000116

NCR-11

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)



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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FPL 000118 NCR-11

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.

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ICDR 1.6b-3 EPU

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Bechtel Integration `

Example Criteria

Maragement 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 50% turnover in personnel work hours 5-8% with occasional OT work hours 5-9% with occasional OT work hours 5-10% JW staff at 9 people JW staff at 9 people JW staff at 9 people ODC and OHO limits ODC and OHO limits ODC and OHO limits Research and the staff 30 days prior to Outage Project work 6-10%, CP on 7-12%, Double fime OT on 7th da Assign cost and probability of occurrence 2 shifts during Outage, no double fime 2 shifts during Outage, no double fime Specific CP and near CP high risk mods Construction 2 shifts during Outage FNM at full staff 30 days prior to Outage FNM at full staff 1 week prior to Outage FNM at full staff 1 week prior to Outage Freman/GF ratio - Identify for each project Foreman/GF rat		P-50	Best	Worst
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Engineering by FPL in April (e.g., can the Elect Lead do Elect and RCC) ramp-up or engineering stan to perform to the performance of the perfor		Project Scope is the work list as approved	Define savings in resources	Using 1-12 approach resulting in huge
Levelized and optimized 1-9 with some Image: mode mode mode mode mode mode mode mode	Engineering	by FPL In April	(e.g., can the Elec Lead do Elec and I&C)	ramp-up or engineering start to perform work
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Most milestones met (9Mo criteria) Most Engineering in H.O. as appropriate All crighteering at site All milestones met (12 mo criteria) Just in time material deliveries save All milestones met (12 mo criteria)		Optimize Frederick/HO scope split	Some milestones to 1-6	KISK ITEMS OCCUF - define most probable
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Materials and Subs Award at 3 sites to same subcontractor (wateriouse costs and mining to separate subcontracta and source in the subcontraction) (wateriouse costs and mining to separate subcontracta and source in the	Materials and Sups	Awaro all 3 sites to same subcontractor	wateriouse costs and multiple nationing	Welders - use "rolden arm" subcontractors
Visite the second	, , , , , , , , , , , , , , , , , , ,	Multi Live as much as sentility -	Minimal stack material templaina	PIIIS 10% weld renait rework
Buik buys as much as possible forminal stock instendine maining in doe to it web repair to their		Buik buys as much as possible	Multiplier Stock triateriar remaining	
Ensure BOM is not factored by Engineering More Subcontractors and less Direct Per			Ensure BOM is not factored by Engineering	More Subcontractors and less Direct Perform
Rechtel/EPI ontimize nurchasing effort and again by Field Engr.		Bechtal/EPL ontimize purchasing effort	and again by Field Engr.	Craft
Loop 4 ch a tildeliders - Les "roliden arm" [Use welders from "hall" for all welding 001174	TODD 4 ch of	Holders - use "aniden arm"	Use welders from "hall" for all welding	001174
Significant Stand-alone purchases	GUK 1.60-31	Isubcontractors for critical welds	(no contract welders)	Significant Stand-alone purchases
Risk items occur - define probable risk		Ionnouth address for othered stands		Risk items occur - define probable risks

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FPL 000120 NCR-11 Bechtel Integration

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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

ICDR 1,65-3 EPU 001175

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FPL 000121 NCR-11

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		137	102
Unit 2	103	· · · · · · · ·	151	123
, , , , , , , , , , , , , , , , , , ,				· · · · · · · · · · · · · · · · · · ·

Turkey Point:

	Unit	Needs Filling	Siemens Contract (MWe)	Winter Planning Max (MWe)	Summer Planning Min (MWe)
	Unit 3	104		111	121
DR 1.	36-3 Eblnit 4	104		111	121 0011
				2	·
	tany and Config	iontial	Á		

William R. Jacobs, Jr. Exhibit WRJ(FPL)-7 May 2009 ESC Meeting Presentation Page 19 of 30

Docket No: 110009-E

FPL 000122 NCR-11

Regulatory – Cost Recovery

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

Over 200 Interrogatories and Data Requests responded to on time

- Testimony complete
- FPSC audit of Project Controls complete

Notes:

20

(e)=Estimated date. ICDR 1.6b-3 EPU

Focus - SSJ's, Competitive bldding, "Separate and Apart"

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Page 20 of 3(May 2009 ESC Exhibit WRJ(FP) William

Meeting

Presentation

Docket No: 110009

Jacobs

FPT, 000123 **NCR-11 Scope Validation**

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Evaluating Project Margins and Scope

- Initiated a validation of identified modification margins Φ
 - 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 ICDR 1.66-3 EPU

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FPL 000124 NCR-11

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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Exhibit WRJ(FPL May 2009 ESC Me

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ICDR 1.6b-3 EPU

22.

FPL 000125 NCR-11 Project Risks - PSL

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1. Kelv	Origin Data	Rick Event Cesteription	PUTAUL	Impaot. Javal	¥₽•	Sincosti Exposure (100014)	Typacof	Prob	Weighted Risk Exposure (\$008)	Impact Description	Tilligation Action	
1	\$78/D8	Implementation and Schedule execution may cost more than Proforma		Significant	Cost					Contingency will be needed to expended for any shottfalls not predicted by Proforms Notes Bechtel Indicates Engineering casts will be higher than proposel	Working with Bech(c), Developed aution picer to determine the accurate number of Bechtel staff needed (Inel ection \$/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		Signlfloont	Daəlgu					U-1 Significant cost to modify the cleare dump system of a recyclion in MWe if Toold is lowered	U-fi: Plan to Increase copucity of Sloain dump and Bypose System, Reviewed and accepted by Plant Health Commission U-21 Perform K-T ansylals and provide recommendations to Senter Management ready for Internet challengie with Chief (due S/8)	845 90
3	4/30/09	U-1 PRA for Total Loss of Feedwater Indicates PORVs are undersized for uprate condition		Stankticant	Schedule Cost					Cost and schedule could be impacted if PORVs need to be replaced	Working on Alternative Solisions With likely require mode other than PORV replacement. Risk Mitigation Plan In doyalopment	i se diret p
4	1/23/08	Available Containment Pressure Margin reduced due to the discovery of Legacy LOCA analysis error	м	Significant	Design					Impect is not yet fully analyzed. Current available Margin has been reduced from 7 PSI to 4 PSI 4	Proliminary reanalysis for U-2 is acceptable U-1 will require a mini-punga system Plant Hosih Committee has reviewad Will process scope change	an and a
\$	12/18/08	Preliminary evaluations indicate that the current design flow for U1 hot leg injection may be lass than adequate to support the uprated condition without a modification	м	Marginal	Schodula/ Cast					May require an additional modification. 'The scopo/cost of mod is not yet determined	Will naquiro system modification processing Scope Change	ana di Sangara di Sangara
6 '	5/28/08	WEC & SHAW vendor statting level may not be sufficient to support project	M	Significant	Schodulo					Could cauce delays with LAR tchestuls and/or cost additional manias,	Agroemant an ro-baselining reached; no impact to and date for Show and WEC	· 6
7	7/30/08	Rewind at PB and PSL overlap	M	Significant	Schedulo					Specially Tochnicians and equipment are required at the same line at P8 and PSL. Could delay rewind at PSL and bifect PSL Critical	Siemone requires 31 days from start of PBNP cutage and the start of PSL outrage; currently 36 "days exist in the schedula (Difference of 5 days) tage Millionton Plan for datalls	Doc Wil Exh Pag
3 ICD	Prior to 2/108	License Amendment Request NRC Review could be delayed due to errors and omissions - NRC Acceptance - NRC Trachnical Review - ACRS Review - SBLOCA Confirmatory Analysis	м	Critical	-Regulatory/ Schedule					Depending on the extent of the delay, earlief result In additional cost and extension of the project honget	1. Propuro LAR consistent with RS-001. NRR Review Standard for Extended Power Upretes. • Develop EPPI for format and lavel or data 2. Use Grans UPU submitted as a guide for 3. Secureter or olaval 5. Secureter or olaval 5. Secureter or olaval • Self Assessment after 1st LAR Section 4. Multi-party per reviews tablag Industry and regulatory experia S. Advance on exciting with NRR management 722/109 • VP Nuclear Power Uprate mot with NRR management 722/109 • Control on the NRR 4. CAN: met with NRR Control on SUSION for Solar Submitted 6. CPN Nuclear Power Uprate mot with NRR management 722/109 • Control on the NRR 4. CAN: met with NRR EDD on SUSION In discuss. 6. CPN Nuclear Power Uprate mot Web NRR 6. CAN: met with NRR 6. CAN: met with NRR EDD on SUSION In discuss. 6. CPN Logicality Of proshout In Waghington to coordingte questions and RAIs	ket No: 110009-EI: liam R. Jacobs, Jr. ibit WRJ(FPL)-7 y 2009 ESC Meeting Presentati e 23 of 30
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Project Risks – PSL

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	Origin Date	Risk Event Description	HIME	mpact level	iye.	Madmum Cost Exposure (\$000)	Type of	Prob.	Weighted Risk(i Exposure (\$800)	mpactDescription	Mitigation Action	
9	, 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 on accomptable proceedure 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 fisk identification and miliigation utilizing Win-4A-1000; Thus far, the process has been effective	Annal Parisana Annala.
11	5/12/D8	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)	м	Signlifeant	SchedLie/ Cost					A lack of adequate skill craft could impact (the outage schedules and related costs	Will continue to menitor Have instituted a 60 day rehire policy for these individual contractors that feave the site/project voluntarily Instituted mentity meetings with BAs	575.000 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 -
12	6/3/2008	Transition to Nuclear Asset Management Systems (NAMS)	м	Marginal	Programmatic					May ceuse delays with review and opproval of Engineering Documents	Per Fleet wilds Change Management Plan Hold meeting with VAMS coordinator and Ske PMs Transition to NAMs currently scheduled for Doc 09	K E S D
13	2/13/08	Vendor Staffing Lever may not be sufficient to support the Project	М	Signiticant "	Project Mgmt,					Schedule and Outage Milestones could be Impoded	Continue to monitor actual starling levels againstrain astablished staff ramp up Plan Conducting quarterly meeting with Major Verido and CNO starting in April	ocket No. 1 Jilliam R. J xhibit WRJ
1 2 3 4 C Meetti												
ICI	Weighted High Risk items total ~									Do	01181	ar Drecentatio
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Project Risks – PTN

1.8.8.2	-Origin Dates	Rick Event Description:	HOAC	impart lovel		Maximum Cost Exposure (\$000)	Type of Estimate	Dre e	Weightad RieE Expositio (SU00)	impact Description	Attigation Action
1	stura	Implementation and Schodula execution may cost more than Proforma		Signlifeant	Cost .					Contingency will be medded to expended for any blortmits not presided by Proforms Nata: Bechief locicates Englacering costs will be higher than proposed	Assessing scope and staffestimules See Nidgetion Plan for Details
-2	: 4/23/09	Turbine Gardry Crane travel speed, available laydown space, etc. Crane may be Less than Adequate to efficently support the EPU outlages		Critical	Schedule					ipability'le differnity ramova and replace ឧត្តមជាការ ពុទឧតថថ for powar មន្តរាជ poposed Cutage Uno frame	Oblain qualified CEM fo evaluate the events andline of the Grane and provide meanwandations Review recorrected at a standard the standard Review recorrected at the standard standard Review to Improve error to Tability and constand See Risk Mitigation Plan for details
3	<u>10/10/08</u>	Error discovered in the Containment Integrity Design Basis Analysis		Critical	Programmatic					The Error (non conservative) may algorithmity radius the Containment Prossure Margin needed for the Extended Power Uprate conciliare	Paverable results with heat sight model, Further COW modes may be recuesting. Performing KT Analysis to elementa scope and significance of modification to be determined by SIG1809 See Risk Milligation Plants for Details
4	Prior la 2/1/05;	Project Stalf Level not sufficient		Significant	Project Marrie					Project not abile to establish and multilain an adequate level of h-house and augmented staff performel-starting sevel not sufficient to manage project efficiently.	Raised to High dos to recent resignations of Key Engricoting Management See Mitigation Plan for details
5	2/4/00	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	М:	Significent	Cost/ Schedula					Potent/ol fo extend ≋to Outage and/erzilp a cycle cortice in-can/lee date	Bolog roviewed per Bachtal Tevolization and Octobe Scopp Plan
6	er2/2008	NRR Instruction (LIC-109) requires the AST:LAR to be submitted and approved prior to submitting the EPU LAR	м	Critleni	Royulidory					Assuming it takes 12 months for approval of the AST and "A Months for EPU LAR, there is only 4 martiss facility to the AR stochastic (the EPU LAR is not recoived by December 2010, then would be unable to perform new Fool Readpt (SFP Critically)	Apply necessary project focus to encure the AST LAR is submitted an Later stan June 00 Pro-opplication Meeting with NRC held on 424/00 LAR to be submitted for Station Review by 9/12; All reviewers perconally motified
7	10/14/08	There is potential that Legacy Analysis or Licebae basis issues may be uncovered during re- analysis for EPU LAR	м	Significant	Programmatic					Trine such toms havo zligady been identified; PE Wing, FTN GTMT analysis and PTN EGP foor The Impact is difficultic quantify until disporaty	EPPI-145 now instruction that dolines hak Kientifaation and määgesion viitiong WX/-VA-1009.
8	ICDR 1.6	New NRC mandated Manufahabee rule working hours will further limit allowed working hours	Ņ	Marginal	Cost		F.			fotonilally toxiand bulage Dumbins anti/or remase costs	EPU management working with Baldid Sciencine on acceptation procedure which will minimize the Impact to EPU
	Propriet	tary and Confidentia	I.			1	2	3	4	1	

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Project Risks – PTN

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Presentation

FPL 000129 NCR-11

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Performance Indicators

Performance Indicators - PSL



FPL 000130 **NCR-11**

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Performance Indicators

Performance Indicators - PTN



Schedule U3R25 - Fall 2010	Schedule U4R26 - Spring 2011
RP-21 RP-1 CRp	RP-2 RP-1 GRD
Total Salvant Market Station Outage Milestone Status	Michille Status
National State St	Contract of Data D Pres
WARKEN Y Y 13 LAR Milestone Status	15 An Ingruon gians
家尼姆·姆尔·阿姆·伊姆·伊姆·日本 LAR Critical path	1 14 SARE 114 MY
Y Y Y IS Major Deliverables Histogram	Y Y Y S Major Deliverables Histogram
	Construction of the second design of the second des
Eng. Deliverables U3R25 - Fall 2010	Eng, Deliverables U4R26 - Spring 2011
RP-2 RP-1 CRg	RP-2 RP-1 CR0
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期 Sill Musi Sill 加速 Sill 2 PCM Burndown Chart	HAR CANADA STATE PGM Burndown Chart
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WDix SUD 2 MD vid Drawing Status	atil/Debal/UDativeUDed4 Drawing Status
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Project Management 113825 - Fall 2010	Project Management 14826 - Spring 2011
	Troject Managemento 4120 - Opring 2011
KP-2 RP-1 CRD	RP-2 RP-1 CRP
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WODRIND MILLING CONTRACTOR	Brodenadora poden Z Task Plans
HENDING MACHANIS OVERIME Tracking	the second standards
Engineered Material U3R25 - Fall 2010	Engineered Material U4R26 - Spring 2011
RP-2 RP-1 CRD	RP-2 RP-1 CRp
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Y Y Y 3 Fabrication / Deliver	Y Y Y 3 Fabrication / Deliver
Installation Planning U3R25 - Fall 2010	Installation Planning U4R26 - Spring 2011
RP-2 RP-1 CRp	RP-2 RP-1 CRp
W W W 1 Work Order Planning	W W W 1 Work Order Planning
W W W 2 Site Preps	W W W 2 Site Preps
約5個 网络 的 M Still 3 Work Order Complete Burndown Chart	副已始初期的高度的图3 Work Order Complete Burndown Chart
AUD A HUDE 4 Manpower Planning	从UD3例UD3例UD24 Manpower Planning
生UD》都UD给他DPES Constructability Walkdowns	HUD HUUD AND S Constructability Walkdowns
Legend Signa Total Float is (+) & Baseline Variance is (+)	
White Total Float is (+) & Bazeline Variance is (-), BL	Date is > Data Date
Yellow Total Float is (+) & Baselina Variance is (-), BL	. Dato is < Data Date
[武子前] Total Float is (-) & Baseline Variance is (-), BL	Date is < Data Date 001185

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Docket No. 110009-EI

Supplemental

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Saint Lucie Cash Flow



FPL 000132 NCR-11 Supplemental

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Turkey Point Cash Flow

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Willy Exhi July Page	۵	Area Summary & Line by Line	
	ø	Implementation	
	ø	Risk and Mitigation	
	10	NRC Schedule	
	D	Lessons learned	
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FPL 000058 NCR-11

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. Overview

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3

Current Plans and Targets

	PROF	PROFORMA			ECAST
	U-3	U-4		U-3	U-4
LAR Submittal	9/01/09	9/01/09		6/30/10 ⁵	6/30/10 ⁵
1 st Outage					
Duration					
analar alara			·See		
2 nd Outage					
Duration		- Construction (Construction)			
In Service Date	April 2012	October 2012		May 2012	December 2012
MWE	104	104		118 4	118 4

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 dutations

⁴ MWe based on Siemens heat balance (contract farget)

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

ICDR 1.66-3 EPU Longer duration Outages have been included in the business model

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Draft - Proprietary & Confidential Business Information





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FPL 000062 NCR-11 CONFIDENTIAL Dočkét Nö. 110009-EI
 William R. Jacobs, Jr.
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N6: T10 NR. (R. Jac VRL)(R. Jac 22009 E of 40 of 40				· · · · ·
DESCRIPTION	ORIGINAL	CURRENT	VARIANCE	EXPLANATION / NOTES
EOP Analysis and Engineering		- unde		and a large to summarize the second
	\$6,000,000			Base Scope /
RAL Support		mattania		Base Scope
Shaw score adjustments		- Contractor		pase Scope
MSIV/MSOV Disk Qualifications				base Scope
Mid Process Review				Hiddatty OLOT Talled disks
Additional Analyses			Section 20	Analysis from raviou avois unacestable results
FPI LAR Engineering				Analyses nonnevew cycle, unacceptable results
FEL MOD Engineering Support for LAR				
SUBTOTAL	36 000 080	\$18:050:705	-\$12:050 705	a and a second and a
	40,000,000	414,000,700	-472,000,700	and the second
Grid-Stability Risk Study	\$250 000	Constant of the local division of the		
	0200,000			and the second sec
Other Contracts			unding and	· · · · · · · · · · · · · · · · · · ·
Third Party Reviews	\$222.000		The local designment of the	Owners Support and independent reviews
Environmentally Assisted Fatigue Reapaysis	000		and the second second second	Prior methodology for FAF or longer accented by NRC
AST Dase Analysis				New dose analysis needed to sunnor: accentable results at FPU
				conditions and address control room habitability conditions
Carreron 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			Carlos Acres	• •
SUBTOTAL	\$222,000	\$7,226,563	-\$7,004,563	-
NRC Review Fees	\$2,200,000	\$3,385,864	-\$1,185,864	AST, EFU and Confirmatory Analyses
.; SubTotal	\$2,200,000	\$3,385;864	-\$1,185,864	· ·
an parameter and a second and an and a second	10 1 90 m 1 100 m 100 mm 100 mm 100		May 10 1000 1 100 10 10 10 10 10 10 10 10 1	na a a a ann 21 agus 12 agus ar a a 120 ta an 120 ta bhannan san san san san san san san san sa
Total without Escalation and Configency	\$28,672,000	\$62,648,935	-\$33,976,935	· · · · · · · · · · · · · · · · · · ·
		Δ	2	
			6	

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FPL 000067 CONFIDENTIAL **NCR-11** II: Area Summary တု **Engineering Costs** Page. 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 ICDR 1.6b-3 EPU Draft - Proprietary & Confidential Business Information 12



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II. Line by Line - Engineering

cEl , Jr.)-8 Meeting	This table represents the budget and the current fo	varianc recast.	e in Eng The sia	gineerin nificant	ig costs between the original differences are shown.	
J(FPL 9 ESC	SCOPE	ORIGINAL	FORECAST	VARIANCE	EXPLANATIONS / NOTES	
NR.	5 PUVERRUNS		<u> </u> .			
EV S. 2		ENG.	ENG.	ENG.		
ockel filliar xhibi tly 26	Bondenser Replacement/Ameriap	\$500,000			Ameriap and cathoolic protection system replacements vs. upgrades. Scope increase	
AFAR	Simulator	\$50,000			Reactor core model vs, entire EPU parameter change model. Scope increase,	
2	New Turbine Controls DE-VE-IC	\$500,000			Engineering underestimated	
2	Replace FAC-Identified Piping	\$100,000			Configuration verification and stress analysis required	
1	Allow ance 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.	
÷	Allow ance for MSR replacement.	\$1,300,000			Install drain tanks and modify crossover piping. Scope increase.	
1	Add New Fast closing FW Isolation Valves Outside Containment	\$1,080,000			MOVs cannot meet design requirements AOVs must be used,	
1	Main Steam Piping Support Mods And / Or New Supports	\$300,000			Potential for more extensive modification with additions	
Č.	Sub - Total	\$4,430,000	\$21,378,000	-\$16,948,000		
		anangeling conferences			•	
	OVERUNS \$1M					
1	Implement LEFM Check Plus MUR	\$500,000			Based on detailed mod package estimates.	
2 5	Steam Dumo Valves/pioing Modifications	\$120.000			Actuators, positioners and new cabling from control room vs. local valve	
4	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 Uhits)	\$345,000			Scope increase larger heaters, stress analysis plus stranded costs	
4	Alternate SFP Cooling System				Scope Increase, increased analysis manhours and job complexity	
- 10.2.44	Allow ance For Replacement Of Gravity Drain Piping - #5 Heater	\$200,000			Scope increase; longer pipe section replacement and stress analysis issues,	
14-14-1 1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-	FW Regulating Valve (FRV) Trim Replacement	\$200.000			Scope increase; actuator and solenoid replacements with additional stress analysis	
1	BOP Instrumentation & Control Setboint, Rescaling & Hardware Md	\$450.000			Larger BOP instrument & Control setpoint chances. Scope increase.	
:	Replace The Main Transformers	\$350,000			Engineering evaluation eliminated transformer replacement in fleu of cooler uprotade. Scope increase.	
1	Increase Aux FW Pump Genacity & CST Volume	\$100 000	- Charles and Charles	-	Minor valke modifications in lieu of pump modifications. Scope increase,	
2	nierosofting (vr) and appoint a cort voicing	+ 100,000			instal action to the second of the second state of the second stat	
7	Sub-r Total	C2 765 010	\$9 107 007	-96-342 007	- Burning - Burning Halter - California - Ca	
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II. Line by Line- Engineering

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SCOPE	ORIGINAL	FORECAST	VARIANCE	EXPLANATIONS / NOTES
UNDERRUNS				
Add FW Hir # 5 & # 6 Digital Level Controls	\$2,450,000			Eliminated due to scope reduction (1-4 feedwater heaters no longe being replaced)
Emergency Containment Filter Removal	\$724,000			Abandon în place vs. complete removal.
Station Electrical Load.Study (ETAP)	\$400,000			Reduction due to single ETAP analysis per outage vs. by mod.
			19	
Sub - Total	\$3,574,000	\$2,010,000	\$1,564,000	
an na na a a a a a a a a a a a a a a a				
SCOPE INCREASES		· ·	Lis Condition of the second	
Heater Drain Tank Alternate Drains				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)	and the second			Actuals for 30% design. Nod not required for existings heat loads,
Turbine TAPS	\$0		and the second second	Needed for data collection for HP turbine design
Sub - Tatal	\$100,000	\$3,245,000	-\$3,145,000	
· · · · · · · · · · · · · · · · · · ·	and the development of the development	(Brenner -	1	
SCOPE DELETIONS				
Rx Vessel Upper Head Temp Conver. (DHEHC) CRDM Anal	\$1,000,000			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 Hirs - 赤3 (4 Sub - Total For 2 Units)	\$300,000			Not required due to 3 condensate pump option,
Replace 2 LP FW Filtrs - #4 (4 Sub - Total For 2 Units)	\$300,000	•		Not required due to 3 condensate pump option.
FW Pump Thrust Bearings	\$250,000			FM pump modifications not required due to 3 condensate pump opti
				Hydrogen cooler engineering cost included in Siemens generator upgrade
Cooler Replacement to Support Gen Hydrogen Cooling	\$200,000			
Cooler Replacement to Support Gen Hydrogen Cooling Allowance For New Jet Inpingement Shields And / Or Pipe Whip F	\$200,000 \$150,000			Scope combined with main steam pipe supports and whip restraint
Cooler Replacement to Support Gen Hydrogen Cooling Allowance For New Jet Inpingement Shields And / Or Pipe Whip F Current Transformers & Bushings Replacement	\$200,000 \$150,000 \$20,000	-		Scope combined with main steam pipe supports and whip restrain Scope combined with Slemens generator upgrade cost
Cooler Replacement to Support Gen Hydrogen Cooling Allowance For New Jet Impingement Shields And / Or Pipe Whip F Current Transformers & Bushings Replacement Containment Cooling Mods - Chilled Water (NCCs)	\$200,000 \$150,000 \$20,000 \$650,000			Scope combined with main steam pipe supports and whip restrain Scope combined with Slemens generator upgrade cost Replacing NCCs only. Not adding chilled water.
Cooler Replacement to Support Gen Hydrogen Cooling Allowance For New Jet Inpingement Shields And / Or Pipe Whip F Current Transformers & Bushings Replacement Containment Cooling Mods - Chilled Water (NCCs) Sub - Total	\$200,000 \$150,000 \$20,000 \$650,000 \$5,270,000	\$1,682,000	\$3,588,000	Scope combined with main steam pipe supports and whip restrain Scope combined with Slemens generator upgrade cost Replacing NCCs only. Not adding chilled water.
Cooler Replacement to Support Gen Hydrogen Cooling Allowance For New Jet Inpingement Shields And / Or Pipe Whip F Current Transformers & Bushings Replacement Containment Cooling Mods - Chilled Water (NCCs) Sub - Total	\$200,000 \$150,000 \$20,000 \$650,000 \$5,270,000	\$1,682,000	\$3,588,000	Scope combined with main steam pipe supports and whip restrain Scope combined with Slemens generator upgrade cost Replacing NCCs only. Not adding chilled water.

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II. Scope Reductions

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FPL 000070

Major Scope Reduction Items

				TIOLO	
DESCRIPTION.	ESI.	PKUS		KISK	WILLIGATION
NUTRICE TO THE REPORT OF THE SECOND STREET, STREET, STREET, STREET, STREET, STREET, STREET, STREET, STREET, ST	CERTIFICATION OF THE PARTY OF	I WASHEND BURNING STRUKTURE		引用的時代的情報的	
Reactor Vessel Unner Head			Potential CROM temperature		
Temperature Conversion	Sector States	Cost Savinos	issues	Medium	AREVA to perform CRDM Thermal Analysis
Replace the Main					Increased cooling capacity for existing
Transformers		Cost Savings	None	Low	transformers
Feedwater Heaters #1 thru 1 #4 deletion		CostSavings	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		0.40.000	man and a start of the start of		
Exciter		Cost Savings	Potential reduced lite cycle	Low	Siemens analysis/Project Management reviews
Alternate Spent Fuel Pool Cooling Sys		Cost Savings	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		CostSavings	Exciters are forty years old	Low	Exciters are inspected on a preventive maintenance program and the fleet has a spare.
Balance of Scope		Marine Marine Marine and		the second second	
Reductions	· Station and the		-		
GDF-1.66-3 EPU	\$57,060,914	an a			001254
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II. Scope Additions

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Major Scope Additions & Increases

DESCRIPTION	REQUIREMENT	RISK OF NOT DOING	TOTAL VARIANCE
Condenser Replacement/American	reliability	MINITOSS	
oondenset ReplacementAmentap	Results in increased MWs and increased plant	10100 2000	
Allowance for MSR Replacement	reliability	MVV Loss	
HP Internal & Rotor/Generator	1		
Rewind/Rotor Hi Lift	Results in increased MWV's	Can not perform upgrade	
License Amendment Request Support	· ·	LAR activities required to up-rate	
Activities	NRC Required	units	
		Reduced Contract Oversight can	했는 이 이 영화
Project Support-FPL Project		result in an unwanted plant event	
Management Services	Appropriate contract and project administration	and budget/schedule over-runs.	
Steam Generator Moisture Carry Over	Reduce moisture of steam to turbine	Potential turbine damage	
	Various work scopes such as disposal costs,	Circuit agentic Circler	
Plant Cratt Support	transportation, supplemental services	Significant to Station	
Panlace EAC identified pining	Higher Flow	maintenance cost	
Replace I NO sidelituled pipility		Required Plant Support not	
Outage Extension	Support Plant during extended outage	available	
New Turbine Controls DH/FHC	New HP Turbine Upgrade	MW Loss: EPU not achieved	
	Additional cooling required for generator	Limit unit load during Summer	
Add'I Cooling Mods to TPCW/ICW	components	(MW loss)	
· · · · · · · · · · · · · · · · · · ·	Upgrade requires replacement of Isophase Bus	· ·	
Incursors Drive Driver Carling Cirt	canacity	MMALLOSS	
isophase bus buck cooling sys	capacity .	Control Room Emergency	
License Amendement request - AST	Alternate Source Term LAR required	Ventillation and Accident	
Mod's	modifications	mitigation - NaTB Baskets	
Balance of Scope Increases		une the state of t	
Total 1.66-3 EPU		001	255405,166,593

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II. Line by Line - Material

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etin tati	This lable represents the n	laju	I Valla	110	entm	au		Als between the original budget
Ne ve	and the current forecast. T	he s	signific	an	t mate	FI	al cost	differences are shown.
ຊີຊີບົບຊື	DESCRIPTION	1	ORIGINAL	F	ORECAST	י	ARIANCE	EXPLANATION / NOTES
CO C	OVER-RUNS							
I S S S S	Condenser Replacement	\$	30,000,000	\$	2		:	Raw material price, Amertap, Cathodic protection
5 H 2 2 4 1	New Turbine Controls DEH/ EHC	\$	4,800,000	S			-	Scope increase, replace capital spares
Se of the second	Add FW HTR#5 & #8 Digital Level Controls	\$	459,200	\$				Based on Preliminary estimate, Forecast based on recent PTN installations
cké Jlia y 2 rk	Add new fast closing FW isolation valves	\$	1,500,000	\$				Current contract exceeds original budget
AN BEE	FW Regulating Valve Trim Replacement	\$	330,000	\$				Current contract exceeds original budget
		1.				\$	· •	
	TOTAL	. S	36,889,200	\$	69,656,214		-\$32,767,014	
1	UNDER-RUNS							an a
	Replace HP FWH # 6	Is	6.000.000	5		5		
	Alternate SFP Cooling System	s	3,900,000	s	-	s		Reduced cooling capacity for incremental heat load (Risk item)
:	Allowance for replacement of gravity dr. ploing	- 15	250.000	s		S.		Based on Preliminary estimate
•	,	Ť			·	\$.		
: :	TOTAL	5	10,150,000	\$.	5,223,873	\$	4,926,127	
	SCOPE INCREASES			1		1		
:	MSP Daniagement	10	24 200 000	e		1	·	I continue to the nining and status and status
1	Additional Chains Made to TECAL/ MAL		24,200,000	<u>~</u>		+	-	Wat Euclidear Onete Original Scone - Value installation
			2,000,000		-	<u> </u>	-	Teat Contailiger, Coast, Original Coope - Paive Installation.
	Nodify the Iso-Phase Bus Duct Cooling System	s	450,000	s				Scope change from Cooling to replace entire isophase bus
	Implement LEFM Check Plus MUR	\$	2,400,000	5		1		Current contract exceeds original budget
	Control Room Emergency Ventilation	s	÷	s	-		-	AST driven additional scope
	TOTAL	\$	29,050,000	\$	47,179,442	ľ.	-\$18,129,442	
			in the second second	-		i i		
	SCOPEDELETIONS				1			
·	Replace The Main Transformer		16,000,000	1.\$	-	\$		Uprate vs. Replacement
	Replace LP FWH#1	\$	4,000,000	5	-	S		Not required for 3 Condensate Pump option
.:	Replace LP FWH#2	<u></u>	3,000,000	. \$	-	<u>چ</u>	·	Not required for 3 Condensate Pump option
;	Replace LP FWH#3		3,000,000	5		. 5		Not required for 3 Condensate Pump option
4 4	Replace LP FWH#4	-	3,000,000			- 34 12		Not required for 5 constants are runn option
1	reedwater Pump Innust Bearings		800,000	3		13		Nic Cycle scope leview reductions (rusk keing
Ý	Main Steam Piping Support Moos		200,000	<u>.₹</u>	•	[\$ e	-	Based on Preunitary estimate
	TINCTORE TAN LAND CODARIA CO LA ANTER	14	00,001	10	0 210 200		20-550 005	Edition in Everyter (1 on a mark
.			100,000	1.2	3,210,200	3.	20,008,000	
а.	CDR 166-3 EPU)	105 100 000		101 000 700		COC DED COO	<u>001257</u>
3	CARAMO TO LAC	Ş.	105,189,200	4	131,209,729	1	-943,060,529	internet and internet

*Totals do not represent all Material items

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III. Implementation

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Original implementation estimates based on limited field

III. Implementation Line by Line

vocket No. 110009-ET William R. Jacobs, Jr. Exhibit WRJ(FPL)-8 July 26, 2009 ESC Meeting 110000 ESC Meeting information. Costs for EPC contractors are higher than anticipated. EXPLANATION / NOTES DESCRIPTION ORIGINAL FORECAST VARIANCE er S Songlenser Replacement/Amertap Increased work scope definition: heavy haul, handling. Increased scope 23,500,000 American, cathodic protection, Bechtel Indirects Original estimate based on preliminary staffing plan (5.5% of total cost) Project Support - FPL Project Management Services 19.624.800 52 FTEs HP Turbine Siemens Allance - Open/Close Cost Not included in turbine scope estimate Generator - Rotor Replace Open and Close 7,000,000 Not included in generator rew ind dollars Original estimate based on preliminary implementation staffing plan, Project Support - 5 FPL Home Office forecast is combined support 4,368,000 Add'I Individual Siemens tasks wrapped into one project (H2 cooler, Generator - Stator Rew ind CT's, bushings, rewind) 7.000.000 Replace 2 HP FW Hbs - #8 (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) increased work based on detailed scope, Bechtel indirects 1,650,000 Mid Course: Scope Review - Added additional work for 3-pump Install Condensate Pumps - Replace Internals operation. 1,800,000 Allow ance for Additional Cooling Mode to TPCW/ICW 1,500,000 Scope growth - Hx Rplcmt vs isolation valves BOP Instrumentation & Control Selpoint, Rescaling & Hardware Mc 210.000 noreased work scope due to better scope definition Allow ance 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 Scope changed due to different valve type 6,000,000 Mid Course Scope Review - Scope reduced but per unit estimate Add FW Htr #5 & #6 Digital Level Controls 2.640.000 increased Implement LEFM Check Plus MUR 3,100,000 Increased work based on detailed field walkdowns Upgrade MSIV Internals 150.000 molementation costs 81,705,200 \$ TOTAL 255,056,832 -\$170,359,632 UNDER-RUNS Containment Cooling Mods - Chilled Water (NCC's) 5,500,000 Allocated to other Mods 700.000 Main Steam Safety Valve / Piping Modification Conservative original estimate based on worst case scope Alternate Spent Fuel Cooling System 3,900,000 TOTAL 3,970,000 \$5,230,000 10,100,000 ICDR 1.6b-3 EPU 001262 1 2

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III. Implementation - Line by Line

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		FORDORIOT	VARIANCE_	
SCOPEINCREASES			•	
				Increased work due to drain tank additions, height elevation chang
Allow ance for MSR replacement			- -	large bore pipe
				Low original estimate based on Shaw recommended scope, Becht
Replace FAC-Identified Fiping			. 7	Indirects
Training & Procedures			1	Specific item not included in Shaw's base scope
				Scope evolution and increased cost to implement duct replacement
Modify The Iso Phase Bus Duct Cooling System				coolêrs
Replace The Main Transformers			, í	Total contracted cost for cooler replacement
O&M-			. 2	Anticipated material write-offs
Heater Drain Tank Alternate Drains			. ;	Additional work required
General Conditions (Env. Permitting, Other)		·	i	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
		·		New LAR scope: Control room ventilation, NaTB Baskets (vs. Cher
Modifications for AST				injection)
Replace normal and emergency heater drain valves				Implementation costs
				Implementation costs: includes capital spare replacement compone
New turbine control DBVEHC				not în base scope
Outage Extention cost				Trued up for actual outage duration
FW Regulating Valve (FRV) Trim Replacement			3	Implementation cost
Steam Generator Molsture Carry over (errosion / corrosion degree				Bechtel support of Westinghouse
TOTAL	\$57,454,300	\$144,987,559	-\$87,533,259	
SCOPE DELENONS				I A state of the second s
24 NORIA FUELOVCIE				Scope decrease based on evaluation
Repace 2 LP FVV MIRS - TKS (4 Total For 2 Units)				Mo Cycle scope review reductions
Replace 2 LP PVV Hus - #4 (4 Total For 2 Units)			_	Mo Cycle scope review reductions
Pressunzer Loop Seal Removal				Scope decrease based on evaluation
Addition of Thim Coolers to Exciter				Scope evolution and distribution into other mod
Replace 2 LP FW Hirs -#1 (4 Total For 2 Units)				Md Cycle scope review reductions
Replace 2 LP FW Htrs - #2 (4 Total For 2 Units)		tes Tes	·	Mid Cycle scope review reductions
Cooler Replacement to Support Gen Hydrogen Cooling				Scope evolution from Shaw evaluation and distribution into other m
FW Pump Thrust Bearings				Mid Cycle scope review reductions
Allowance For New Jet impingement Shields And/ Or Pipe Whip F				Engineering evaluation
Nozzle block and blade modification		5a -		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.
	40,335,000	3,067,500	\$37,267,500	
IOIAL				the second secon
	1	1	A CONTRACTOR	l:

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FPL 000081 CONFIDENTIAL NCR-11 **III. Implementation** rkey Point) Presentation 2009 ESC Meeting NRJ(FPL)-8 WRJ(FPL)-8 This timeline shows original Bechtel costs and the of 40 changes that resulted in a reduced EPC costs Exhibit

		. ·	PTN EPC Sc	ope and Foreca					
Approx: Date	5/15/2008	Prior to contract (10/15/08)	11/07/08	05/03/09	06/30/09	7/1/2009 77	07/02/09	07/02/09	07/14/09
ltem	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 P50	Same as previous. submittal with clarification of scope ~\$ 4.765 M	P50 with reduced scope (Changes to MODS scope from Mid-cycle scope review)	P50 with reduced scope (Consolidation of Procurement & Reduction In Management Services)	P50 with reduced scope and reduced Eng. & Craft Hrs after MOD by MOD Estimate Reviews
Total NM Man-hours									
Total Craft Hrs	Barradk -						· · · · · ·		
Total Dollars		5	s		.\$	\$	\$	Ś	\$
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- 155 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.	Sased 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 SpeciM- 156 Revi1 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

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Docket No. 110009-E1

This table represents t	he total	varia	nce l	oetwee	en the original budget and
🗄 🧯 the current forecast. F	urther k	preakc	down	for L	AR, engineering and
$\frac{2}{2}$ implementation appeal	r on oth	er slic	des		
DESCRIPTION	ORIGINAL.	FORECA	AST	VARIANCE	EXPLANATION / NOTES
S BVER-RUNS					
C L e	\$54,000,000				Balance of Plant material cost, heavy haul, Ameritap replacement, Cathodic protection and Bechtel indirects
HP Internals & Roton/Generator Rew Ind, Rotor/ HI-Lift Valves	\$100,062,000				Siemens' proposal greater than original estimate
License Amendment Request Engineering, Licensing and Support	\$28,670,000		4		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
Allow ance for Additional Cooling Mods to TPCW/KCW	\$3,700,000	1			Heat Exchanger Costs, Original Scope - Valve installation
Install Condensate Pumps - Replace Internals	\$5,000,000				New Pumps, Re-wind Motors, Recirc Fiping, HVAC
Replace 2 HP FW Hitrs - #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 Hezter	\$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 Fiping Support Mods And / Or New Supports	\$850,000				Engineering Identified additional supports required
BOP Instrumentation & Control Setpoint, Rescaling & Hardware Mo	\$1,285,000				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 Hir # 5 & # 6 Digital Level Controls	\$5,549,200		1		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	\$680,000				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 (NOC's)	\$10,150,000		· .		Scope reduced from Supplemental Chillers on Aux roof to NCCs
Main Steam Safety Valve / Fiping Modification	\$1,175,000				Based on preliminary estimates
"Total Walk-Thru" Under-Runs Sub-Total	\$11,325,000	\$9,968,6	586	\$1,356,314	
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ES ES					
H and a	E Q DESCRIPTION	ORIGINAL	FORECAST	VARIANCE	EXPLANATION / NOTES
2 A A A	SCOPEINCREASES				
bit am		****			Material Cost, Elevated MSRs- rework Crossover Pipes, drain tank
ly villi		\$32,360,000	<u> </u>	-	accinical based on preliminary paeds assessment (total 5.5% of total
	Project Support - FPL Project Management Services	\$28,419,300			cost); based on 52 FTEs
:	Steam Generator Moisture Carry Over (Erosion-Corrosion Degrada	\$25,000,000		-	Bechtel support of Westinghouse
2 2	······································			* -	Project Services not included in base: disposal, NPS, security, transport
	Plant Craft Support	-\$0			etc
с. :	Replace FAC-Identified Piping	\$6,020,000		-	Implementation cost, Bechtel Indirects
Å	Outage Extension Costs	\$18,000,000			Trued up for actual outage durations
*1	Modify the Isolated Phase Bus Duct Conling System	\$1.040.000			duct also includes Generator Neutral work
÷.	Transfer of work responsibility (Nurses/Ops, etc.)	\$0		•	Bechtel work transferred to FPL
					New LAR scope: Control Room ventiliation, NaTB baskets (vs chem.
ş	Modifications for AST	\$1,500,000			Trijection)
	Training & Procedures	\$0			Specific item not included in Shaw's base scope
à.	Start-Up	\$0		_	Specific item not included in Shaw's base scope
	Heater Drain Tank Alternate Drains	.\$0			Additional work required
1	Temp. Facilities	\$210,000			Warehousing and increased inprocessing not in base
4	AFW Controls		<u>.</u>	_	Additional work required
	Replace Normal & Energency Reater Drain Valves,	\$2,062,600			Implementation costs
:.	M&O	\$0			Material write-off
	Turbine Gantry Crane scoping study	\$0			Not in original scope - Grane is mission critical
·j	Introne IAPS	<u>\$U</u>		-	New scope for turbine performance testing
1	Opgrade internal find and Controllers on the MSK Reneater Steam				Additional work required than Mid Ovela scope review
:	General Conditions (Env. Permitting, Other)	\$0			Additional work required
	SGEP- Actual	\$0			Expended engineering dollars prior to mid course scope review
.:	"Total Walk-Thru" Scope Increases Sub-Total	S114 611 900	5297 207 710	*\$182,595,810	
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III. Line by Line - Total

Meeting sentation Døčkét No. 110009-EF William R. Jacobs, Jr. Exhibit WRJ(FPL)-8

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DESCRIPTION	ORIGINAL	FORECAST	VARIANCE	EXPLANATION / NOTES
SCOPE DELETIONS				
RE Vessel Upper Head Temp Conver.	\$14,000,000			Engineering Braluation; 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	1.		interferences
Pressurizer Loop Seal Removal	\$3,804,000			Engineering Evaluation; not required
Replace 2 LP FW Hitrs -#2 (4 Total For 2 Units)	\$4,950,000			Not required for 3 Condensate Pump option
FW Pump Thrust Bearings	\$1,200,000			Md Cycle scope review reductions
LP Turbine - Analysis	\$400,000	1		Engineering Evaluation: not required
Allow ance For New Jet Impingement Shields And / Or Pipe Whip R	\$375,000			Engineering Evaluation; not required
Community Outreach	\$370,000	1		Mid Cycle scope review reductions
Update EQ Qualification	\$250,000		i i i i i i i i i i i i i i i i i i i	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				the second se
Station Electrical Load Study (ETAP)	\$400,000			
Project Support + 5 FPL Home Office	\$6,825,000			· · · · · · · · · · · · · · · · · · ·
Escalation	\$0		F	Original escalation included in individual line items
NSSS Material / Mainstream Check Valve Implementation	\$0			
Project Escalation (Shaw)	\$62,008,928	ř-		
Project Contigency (Shaw)		-		
"Total Walk-Thru" Other Sub-Total	\$301,738,410	\$36,827,649	\$264,910,761	
TOTAL EDUS HILLIGG BD-8 Bold to	ATT 40 404 440			00 268
IVIAL COPINTROLOT COSIS	P/49,787,170	\$832,585,838	-\$03,404,728	
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		n n	Risk and Mitig	jat	ion			•	
	itation								
. T10009-E1 . Jacobs, Jr RJ(FPL)-8 09 ESC Me	pint) Presen	Origin Date	Risk Event Description	HURUL	Impact Jevel	Type.	Maximum Dosti Type of Prob Explosure Stimits Level 22 15000	Igned Ris Josara Impact Descrobon 5000	Mitgation Accon
ket No iam R ibit W 26, 20	構築	Turkey Pt						RISK	
Doc Will Exh July	nr)	0 9/8/08	Implementation and Schedule execution may cost more than Proforma (Bechtel Engineering and		Significant	Cost		Contingency will be needed to expended for any shortfalls not predicted by Proforma	Assessing scope and staff estimates
			Implementation)					Note: Bechtel Indicates costs will be higher than Indicative bid	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 cutages		Critical	Schedule		Inability to efficiently remove and replace equipment needed for power uprate within the proposed Outage time frame	Condition of the Crane and provide recommendations Review recommendations and implement repairs as necessary to Improve crane reliability and
				行代語					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. Parforming (CT Analysis to determine scope and significance of modification
	-		Sile Capscity:						See Risk Mitigation Plans for Details
•	4	2/4/09	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	Outage Scope Plan Meetings; routinely being held with station to ensure they are integrated with the project
A start and the start of the st	5	10/14/08	There is potential that Legacy Analysis or License basis issues may be uncovered during re-analysis for EPU LAR		Significant	Programmatio		Three such items have already been identified: PB FW temp, PTN CTMT analysis and PTN ECF dose PTN has already experienced emergent mods and additional analysis	EPPI-345 new instruction that defines risk identification and initigation utilizing WM-AA- 1000,
	-6	1/8/09	New NRC mandeled Maintenance rule working hours will further limit allowed working hours	M	Marginal	Càst		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
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I	H.	Risk and Mitig	ati	on						
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(0. 110009-E (a. Jacobs, J VRJ(FPL)-8 2009 ESC M 2009 ESC M	Origin	Por Sent Description	(HPMAL)	impact invel	Туре	Maximum Cort Ecrosure (S000)	Type of Pros atimate Level 1	Weighted Rick Bepetiter (S000)	Miljaton Acitos	
hibit V ly 26, 2 urkey	7/18/09	SDVs to Condenser and Runback	M	Significant	Cost		na manana kaca na kaca (manang Karang)	Potential Plant Trips / Loss of MW	/ Install Runback modifications	(1) (1) (1) (1) (1) (1) (1) (1) (1) (1)
MA PL	7/18/09	Interim Operation Eveluation (Umbrella Operation/Evaluation)		Significant	Cost			Loss of Interim setpoints and config Potential of system transients/trip	iguration; Prepare evaluation, Revise appro procedures, Ops training	priate
14	7/18/09	Runback Circuit Mode for Condensate, SG feedwaler, 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 Technical Specification	Plant Identify inputs, Perform modificat	lion
16	7/18/09	Gland Steam Piping to Gland Steam Condenser is undersized		Significant	Cést			Potentiel Turbine damage.	Rèsize the gland steam piping	ain 1944 - 1994 - 1994 - 1994 - 1994 - 1994 - 1994 - 1994 - 1994 - 1994 - 1994 - 1994 - 1994 - 1994 - 1994 - 19
17	7/18/09	SG Feedwater Pump Reolic Lines		Significant	Cost			Potential feedpump damage	Implement modification to Increase	se recirculat
18	7/18/09	CCW Cooling Capacity Undersized	11	Critical	Cost			Exceed Technical Specification limit	nits for Complete analysis and implement	nt any analy:
19	7/18/09	Emergency Containment Filter Removal (Abandon In place is budgeted)	м	Marginal	Cost			Potential reduction to outage durati realized	lions not Ramove one housing and remove components of two	l of internal
20	7/11/09	Add Fdwtr Htr#1 thru#4 Digital Level Controls	M	Significant	çost			Control Stability during transionts	Implement modification	
21	7/18/09	Turbine Building Structure Mods (potential)	М	Significant	Cost			Vibration and potential equipment d	damage Repair building structure / struct	ture analysis
22	7/18/09	Siemens generator bonus (per contract)	м	Significant	Cost			Unbudgeted funds	improve schedule to defray additi	ional costs
21	7/18/09	Turbine Building Structure Mods (potentiai) Siemens generator bonus (per contract)	M M	Significant Significant	Cost Cost	1	23	Vibration and potential equipment d	damage Repair building structure / st	ruct ddîl

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EI Jr. -8	Meeting					Risk		atı	<u>ix</u>		
No. 110009. n R. Jacobs, . WRJ(FPL)	2009 ESC	-Origin	Pick Event Description	EIMIL	impact level Type	Maximum Cost Eposure (\$000)	Type of Estimate	Ptob Level	Weighted TRSK Exposure (S000)	Impaci Des cription	MigationAction
ocket Villian Xhibit	uly 26	818/09 818/09	Siemens Turbine borius Upgrade (per contract)	м	Significant Cost					.Unbudgeted funds	Improve schedule to defray additional costs
U A H	24	7/22/09	Spent Fuel Cooling 100% Redundant Heat	м	Significant Cost					Single point failure vulnerability decreased plant margin	Install second redundant Heat Exchanger
	Ž5	7/22/09	Additional Westinghouse and Shaw PIN growth		Significant Cost					Unbudgeted funds	Scope control
5 1	26	7/22/09	Aux Feedwater Pump Upgrade	M	Significant Cost	-				Required Pump overhauls to meet Plant	Ensure pumps upgraded including spare;
		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 Slomens Component		Significant, Cost					Cost overrun per contract	Fund cost
1	29	7/22/09	Siemens Implementation: Change and Delay Claims		Significant Sohedule					Unbudgeted funds	Strong Contract Management and Oversite
a a	30	7/22/09	BOP Piping Vibration Modifications		Significant Cost/ Sched	ule				Evaluate existing & expected EPU vibration to BOP piping and implement recommended mods as necessary	Engineering evaluation in progress, scope has not been identified
2									\$147,097		
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V. Lessons Learned

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ESC Meeting

R. Jacobs, Jr. NRJ(FPL)-8

- 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

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V. Lessons Learned

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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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		· · · · · · · · · · · · · · · · · · ·	

FPL 000095 CONFIDENTIAL **NCR-11** V. Lessons Learned t WRJ(FPL)-8 , 2009 ESC Meeting y Point) Presentation **Fast Track Modification Control** Ÿ of 40 Looked at the project only from a high level risk assessment -----(Turkey Exhibit' July 26, 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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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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ESDD Meeting resentation 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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Plans and Targets

	PROI	FORMA	FOR	FORECAST		
	U-1	U-2	U-1	U-2		
				· ·		
LAR Submittal	9/01/09	9/01/09	.9/30/09	1/31/10		
		·				
1 st Outage						
Duration				<u> </u>		
2 nd Outage						
Duration						
In Service Date	October	April	December	June		
	2011	2012	2011	2012		
<u> </u>						
MWE	103	103	129 *	136 °		

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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10. I I I I I I

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Overview – St. Lucie

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Cost Overview

	ORIGINAL	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 ,1 29	(\$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
CODE L'INDEENED (
RISK ITEMS	\$182,130,797	\$60,031,616	\$122,099,181	aconzelan (Innovan)	\$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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II. Area Summary and Overview

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II. Area Summary

<u>Current Budget of \$656M increased</u> 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





2009 ESDD Meeting

July 26,

facobs, Jr. No. 110009-EJ

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Docket

Exhibit WRJ(FPL)-9

II. Line by Line - LAR

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DESCRIPTION	ORIGINAL	CURRENT	VARIANCE	EXPLANATION OF SIGNIFICANT VARIAN
	·			
NSSS Analysis and Engineering	<u></u>	and the second second second		
Westinghouse Unit 2 Fuels, NSSS	\$25,157,000		:	Base Scope
Areva Unit 1 Fuels, Unit 2 RSGs, Rx Heads				Base Scope (original budget for RSGs show
B&W Canada RSGs	\$500,000			Base Scope
Areva Unit 2 RSGs	\$200,000		5	Included in Areva scope above
Contract Incentives				Base Scope
RAI Support			5	Base Scope
PRA Analysis	\$350,000			ACRS now requires showing EPU is risk beneficial
Areva Add'i Sensitivity Runs-SBLOCA, SDBS, SBO, LBLOCA, SGTR				Additional analysis to achieve acceptable results
Containment Spray Flow Reanalysis-LBLOCA	اسلابیت بیندو بو هور ایوی (هاد میدنو هو) و دنیز دهند این (در این اور این در این اور این در او ا	and part of		Emergent technical issue from CBDIs
Post-LOCA LTC add'l analysis				Initial results were unacceptable
New P-T Curves	4			Saves extensive additional effort in 2 - 3 year reanalyze and license new P-T curves
Mid Process Scope Review Changes			(#5 FWH replacement scope deletion
Additional Analyses].		5. -	Reduced HPSI flow for SBLOCA, additional
				analyses from review cycle, pzr nozzle load
SUBTOTAL	\$26,207,000	\$41,931,38	5 _\$15,724,38	5
BOP Analysis and Engineering			<u></u>	
Shaw BOP Analyses	\$7,350,000		and and a second se	Base Scope
ETAP Analysis	\$400,000		·····	Base Scope-Included in BOP enalysis
Contract Incentives	4100,000			Base Scope
RAL Support				Base Scope
Senarale tenorie for PSI 1 and PSI 2 ARe				Separating PSI 1 and 21 AR schedules for
opparate reports for i our and i our entra				issuing certain deliverables twice, once for
				unit to reflect each unit's analysis
Pining Vibration Analysis			***	High displacements at PS1 atvoical
PORV Pining Analysis			····	Analysis reconstitution required
Pr Vascal Supports Instructed Temps				Tamps exceeded existing values encluzed
NA VESSER OUPPOITS INCREASED TEMPS			······	Emergent technical insue from CBDie
Mid Brassa Seens Beview Changes				#5.5WH rapionomonf races deletion
Mid Floces Scope Keview Changes	f			Additional growing on from review such
Additional Analyses				Additional analyses from review Cycle
Additional Analyses		.		Additional analyses from review cycle

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II. Line by Line - LAR

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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		2	Review vendor outputs, generate CLBs, LR sections
Radiological Analyses				Base Scope-Update AST analyses for EPU
Spent Fuel Criticality Analysis			1	Base Scope
Other Analyses Update		-		Base Scope
Integrated LAR Compliation				Compile LAR in E-form for submittal
Additional Analyses				Owners support and radiological
Other RAI Support			<u>7</u>	
SUBTOTAL	\$222,000	\$3,460,795	-\$3,238,795	
NRC Review Fees	\$3,000,000			2 EPU independent LARs, recent EPUs 10,000 hours, TRACE model confirmatory analysis
Licensing and Environmental			r, a	Environmental permitting analysis
SUBTOTAL	\$4,480,000	\$4,158,604	\$321,396	
		· ·		
LAR Internal Staffing	\$6,578,000			Owners Functions-Additional effort for 2 EPU LARs
Total	\$45,487,000	\$72,593,139	-\$27,106,139	· · ·
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FPL 000438 NCR-11

II. Area Summary

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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

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

ENGINEERING (EXCLUSIVE OF LA	R).						
DESCRIPTION	ORIGINAL	CURRENT	VARIANCE		EXPLANATION / NOTES		
OVER-RUNS	Sector Contraction of the Sector S	بيترجو والدفنية تراوية تجوي المحقومين ا	والمدادين والمدوا بحداثة مسلوم فا	ومرتبة تروز والمنافية ترتوج	under sichen under eine sich bestehnen mitte um, die ¹ 885 die einer einen mitte beiden in die einer einer vor		
			-		MSR's are larger than existing, additional impacts to structures and systems, includes		
ALLOWANCE FOR MSR REPAIR / REPLACEMENT	\$ 1,300,000	\$			Bechtel Engineering cosis.		
RP / LP / GENERATOR TOTAL	\$ 2,220,000	\$			Bechtel Engineering costs for design package.		
					Heaters are larger than existing, additional impacts to structures and systems,		
			-		Includes FAC pipe replacement, Bechtel pre-outage ramp value excessive, includes		
REPLACE 2 HP FW HIRS + # 5.	\$ 345,000	\$			Bechtel Engineering costs.		
CONTRAT AUDOODT TOU HOUR OFFICE					Required support for original scope and additional scope underesumated. 1 Files,		
PROJECT SUPPORT - FPL HOME OFFICE	\$ 1,402,000	•			Comparent leventlene Manifed additional areas for listage and bus demons also		
	· ·				due to increased temperatures of ERIT conditions on suit transfer lecture is now		
HODIEVISOLATED PRISETING DUCT COOLING SYSTEM	\$ 200,000	<u>s</u> .			renuired, includes Bechtel Engineering costs.		
WOULL INDUCTED LUXUE DO DOCT COOFING STATEM	200,000				Denviced support for original scope and additional scope underastimated 11 CTE's		
FROJECT SUPPORT, 78 FM / CONTRACTORS	\$ 4 075 500				estimated, 15 FTE's foreasted.		
TRACT CONTACT IN TRACTORS	• 4,010,000		x		Revised scope from replacing 4 transformers to replace 2, upprade coolers, and swap		
REPLACETRANSFORMERS	\$ 350.000	5	1.41		spare, includes Bechtel Engineering costs.		
					Combined all other Condenser modifications, increased scope based on vendor		
					recommendations for tube staking and air removal piping modifications, includes		
CONDENSER MODIFICATIONS	\$ 100,000	5			Bechlel Engineering costs.		
					Revised scope from refurbish existing pumps to replace with new, includes Bechtel		
FEED PUNP MODIFICATION	\$ 500,000	S. 3			Engineering cosis:		
			-		Revised scope from refurbish existing pump rotating assemblies to replace with new,		
UPGRADE CONDENSATE PURPS	\$ 100,000	\$ 0			includes Beahlel Engineering costs.		
		<	r ;		Original estimate was not sufficient for safety related installation and missile protection		
CONTROL ROOM AC MARGIN ISSUE - PSL2 ONLY	\$ 400,000	\$			requirements; includes Bechtel Engineering cosis.		
•					Increase in scope from 2 to 10 valve replacements, includes Beohtel Engineering costs		
REPLACE #2 HEATER DRAIN CONTROL VALVE	\$ 180,000	\$	·				
					Revised, scope from refurbish existing valves to cut out and replace with new valves and		
FW REGULATING VALVE (FRV) REPLACEMENT	\$- 120,000	\$			actuators, includes Beonier Engineering costs.		
	10 10000	*			Revised scope from refurbish existing actuators to replace with new actuators, include:		
MSIV ACTUATOR REPLACEMENT	125,000	\$			Decriter Engineering costs,		
	3. 100,000	1		(\$12 727 004)			
	<u></u>		<u> </u>	[[4]2]27,834]			
	<u>}.</u>	<u>r</u>	1	······			
UNDER-RUNS	1 150 000				Allongted to other mode		
MISC WATERIALS AND SERVICES	10 1,100,000			<u> </u>	Minor		
ELEC BUSSISIEM MARGIN MPROVEMENT	3 020,000	1			Allogated to other mode		
COMMUNIT TOUREACH	15 450,000	1 0 .		<u> </u>			
CONTROL & CIRC SETTOINT, RESOLUTE, & DUNK CONSE	845,000	8			Bechtel Engineering costs		
CONTROL ROOM IN BITABLETT OF ORADES	010,000				Material costs less than estimated based on PTN bids for similar scope, includes		
DEF COMPLITER REPLACEMENT	S: 800:000	5		7	Bechtel Engineering oosts.		
UPDATE EQ QUALIFICATION DOC PACKAGES	\$,250.000	S	e		Allocated to other mode		
CONDENSER MODS - MATERIAL CONDITION	3 200.000	\$			Scope moved to Condenser Upgrade, Modification		
	1			· •	implementation costs were underestimated based on Shaw scoping study, includes		
INPLEMENT LEFN CHECK PLUS MUR	\$ 500,000	\$			Bechtel Engineering costs.		
SIMULATOR UPGRADE	\$ 50,000	\$			Minor		
TOTAL	1.	1		\$3,547,288	Strange States		
		A	2		Contraction of the second s		

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II. Line by Line - Engineering

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DESCRIPTION	0	RIGINAL	1				
COPEINCREASES		NOWAL	Ę GU	RRENT	VARIANCE		EXPLANATION / NOTES
		ودر المانين الترزين		i de la composición d	Tor Stor Cher.		
			_				Additional support and analysis, bld specifications and design interface with EPC
HAW	\$	-	\$		4	1	vendor
CW HEAT EXCHANGERS	Ş.		\$		3		New scope not in feasibility evaluation - identified in Shaw scoping study
CREASE STEAM BYPASS FLOW TO CONDENSER - PSL1	Ş		\$;				New scope - LAR
EATER DRAIN / KSR SYSTEM DIGITAL CONTROLS	\$		\$				New mod resulting from elimination of Feedwater Heater Digital controls.
APROVE HOT LEG INJ FLOW	\$	-	\$				New scope - LAR
EATER DRAIN PUMPS REPLACEMENT & SPARE	\$	-	\$				New scope resulting from Shaw BOP hydraulic modeling.
URBINE GANTRY CRANE	\$	-	\$				New scope - Rellability and margin improvement
TRENGTHEN PARTITION PLATES 4A & 4B FW HEATERS	\$		Ş				New scope - LAR
ESIZE MSR FLOW ORIFICES	\$	-	\$				New scope resulting from Shaw BOP hydraulic modeling.
and the second			<u> </u>				
OTAL	1		L			(\$10,040,638)	
			ł		i ·		
COPE DELETIONS		Sec.		يتسديه المرور	ويتقر وتتعصب والمعتان		
DD FW HEATER LEVEL DIGITAL CONTROLS	\$	1,020,500	\$				Modification not required for EPU after Engineering review
EWIND CONDENSATE PUMP MOTORS FOR 5.9 KV	5	300,000	\$				Modification not required for EPU after Engineering review
EH CONSTANT PRESSURE PUMPS	\$	200,000	\$				Modification not required for EPU, after Engineering review
IAIN STEAM SAFETY VALVE ORIFICE CHANGE	5	100,000	\$				Modification not required for EPU after Engineering review
IRCULATING WATER PUMP REFURBISHMENT	\$	100,000	\$			·	Modification not required for EPU after Engineering review
IAIN STEAH SAFETY VALVES / PIPING MODIFICATIONS	\$	125,000	\$				Modification not required for EPU after Engineering review
OTAL	ŕ		1			\$1,693,271	· · · · · · · · · · · · · · · · · · ·
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RAND TOTAL	(*** 				يترجانا فساملهم تؤجر وواد		
			<u> </u>		•	(\$17,528,073)	
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II. Scope Reductions

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Scope Reductions

Itemi	Description and an	Promising的名言。這個的意思的思想是認識的思想的思想。	Constant and and an an an an an an an an	Riskimmene
.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-swep very expensive and cannot be justified for EPU	Low
4	Replace DEH Constant Pressure Pumps - Replace exist contrifugal pumps with constant pressure	Eliminates obsolete unidading pressure regulators and tubing fatigue issues	Cannot be justified for EPU	Low
5	Feedwater heater digital controls	Improves reliability	Does not eliminale obsolescence issues	Low
6	Main Steam Safety Valve/ Tailpipe Mods	Not required after engineering review	N/A ·	None
7	Maln 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 Sjemens review	None	None

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II. Scope Additions

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Scope Additions

ng			Scope Additions		9		
009-EI obs, Jr. FPL)-9 ESDD Meeti sentation				Scope Additio	ns		
J10 Jac Jac 9 E	21	temat	Description	Requiremental design and the state of the second sec	Risk of not doing		ntal pilini
ket No. iam R. ibit WR 26, 200 Lucie) J	19 of 5	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	\$	
ocl //ill xkhi uly stj	ag	2	Rod Control Upgrade - Margin	Reliability	Decreased Rellability	5	
QX H F S	P	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.	s	
		5	Turbine Gantry Crene - Margin ;	Gantry Crane parts are obsolete and existing cranes are unreliable to support EPU lift schedule	Outage delays	s	
		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	5	
		.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.	\$	
	Ĩ	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%. Rellef valve capacity increase required to protect MSR/LP equipment from overpressure.	Invalidate EPU steam relief requirements, jeopardize achieving planned uprate	\$	

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Jacobs, Jr.

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Docket No. 110009-E1

III. Line by Line - Material Material costs increased MATERIAL OVER-RUNS OVER-RUNS MATERIAL OVER-RUNS OVER-RUNS OVER-RUNS MATERIAL OVER-RUNS <td c

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

MATERIAL			F .			
DESCRIPTION	ORIGINAL.	CURRENT	VARIANCE		EXPLANATION / NOTES	_
OVER-RUNS	in all the same side		and a contracted	تية جود الدوموس	transfeling and differences of the second states with the states of the second states of the second states of the	
HP / LP / GENERATOR TOTAL	\$ 141,100,000	15	;		Siemens labor included in material contract	÷
FEED PUNP HODIFICATION	\$ 4,150,000	15			Added dosts for Spare Feed Pump	_
REPLACE 2 HP FW HTRS . # &	\$: 6,000,000	5			Actual PO values slightly higher tan estimate, added FAC piping	
PGRADE CONDENSATE PUMPS	\$ 67.1.000	5 .			Scope change from rabuild to new rotaling-assembiles	-
HODIFY ISOLATED PHASE BUS DUCT COOLING SYSTEM	\$:450,000	\$			Actual PO, values higher than estimated	_
ISIY ACTUATOR REPLACEMENT		\$			Scope change from rebuild to new actuators	_
CONTROL ROOM HABITABLITY UPGRADES	3 -300,000	S			Original estimate based on GAR Estimate developed in 2005	_
REPLACE #2 HEATER DRAIN, CONTROL VALVE	\$ \$6,000	\$			Minor	-
CONDENSER MODIFICATIONS	\$ 900,000	\$				-
				· · · · ·		
						_
						-
TOTAL	1	ł		(\$15,683,987)		_
	· ·	ł				***
INDER-RUNS	a sugar and the second	مدينة بعن الله في والتريد الديموسي	west to be a three		letenterizenite etenterizen interizen etenterizen der alle errenzen errenzen errenzen errenzen errenzen errenze	
REPLACE TRANSFORMERS	\$ 24,000;000	5			Sooge changed from replace 4 to replace 2.4 upprede 2	_
DEH COMPUTER REPLACEMENT	\$ 5,000,000	5			Values obtained from PTN bid nonosels.	-
ALLOWANCE FOR MAR REPAIR / REPLACEMENT	5 24,000,000	S .			PO volue-slightly lower than estimate	-
MPLEMENT LEFY CHECK PLUS MUR	\$ 4,500,000	\$	2		PO value slightly lower than estimate	-
CONDENSER MODS - MATERIAL CONDITION	.\$ 800,000	5	· · · · ·		Scope moved to Condenser Upgrade Modification	
LEC BUS SYSTEM MARGIN INPROVEMENT	5 510,000	1 .			Minor	_
SILIULATOR UPORADE	500,000	1\$			Minor	_
FW REGULATING VALVE (FRV) REPLACEMENT	\$. \$60,000.	\$			Minor	
IOP INST. & CHTRL BETPOINT, REBCALING&HOWR CHNOS	6 605,000	\$			Minor	
CONTROL ROOM AC MARGIN ISSUE + P3L1 ONLY	8 1,140,000	5			Minor	_
TOTAL	<u> </u>			\$0,833,170	and the second second strength in the second strength of the second	_
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TCW HEAT EXCHANGERS	<u> </u>	\$			New scope not in teasibility evaluation - identified in Shaw scoping study	
EATER DRAIN PUNPS REPLACEMENT & SPARE	1	5			New scope resulting from Shew BOP hydrolic modiling.	_
HEATER DRAIN / MSR SYSTEM DIGITAL CONTROLS	<u> </u>	9			New mod resulting from silmination of Feadwater Heater Digital controls.	_
NCREASE STEAN BYPASS FLOW TO CONDENSER - PSLI		5		k . v	New scope -LAR	
MPROVE HOT LEO NJ FLOW	5	\$.		i	New scops - LAR	_
RESIZE USR FLOW ORIFICES		3			New-scope - LAR	
· · · · · · · · · · · · · · · · · · ·	<u></u>					
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AAIN, STEAM SAFETY VALVE OKIFICE CHARGE - DELETED	19: 1,087;100			<u> </u>	Modification not required for EPU after Engineering review	
REWIND CONDENSALE FORP MOTORS FOR 64 KY	000,000.	*	<u> </u>		In bolication not-raduted for CPU alter Engineering review	
CIRCULATING WASER FUMP REFURBISHMENT	4. 2,700,000	-2-	<u>{ </u>		Modulestion not required for COU after Engineering revow	
ADD FW REATER LEVEL DIGHTAL CONTROLS.	363,000		<u>· ·</u>		IN BOMICATION NOT REQUIRED FOR CE DI AND ENGINEERING TOMORY	_
THE GUNSTANT PRESSURE PUMPS - DECETED	3 300,000,	B	3		In organization not required for EPU after Employed or relation	-
NAM STEAM SAFETT YALVEST PIPING DODIFICATIONS+DE	1 3 103,800.				Moomoshon nooradured for CFU aren Cugateening lexiew	
	<u> </u>		<u>. </u>	43 838 644	the second se	_
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III. Implementation

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III. Implementation

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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

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CONFIDENTIAL

Summary of all Implementation Costs

Cost Center :	Original Budget	Forecastat Completion	Vs. Currant Budget	To. Go
implementation	119,714,200	360,383,433	(240;669;233)	339 534 976
EPC Construction	a produce de la constante de la Constante de la constante de la Constante de la constante de la			· 0401010410
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				
	lane senare e contra contra contra contra para e contra da de contra	danaderaanse viineeraalee 7	Z.	ulussiinen simunaanin Ü

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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

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

ALLOWANCE FOR SCOPE	1,5	4,000,000	Ł	1 1	i	Anocated to biner moos.
UNDER-RUNS	÷.	S	:	<u>ر ما تا موجع می از مامه موجع ما موسط میں اور میں میں میں اور میں میں میں میں میں میں میں میں میں میں</u>		Allocated in all an made
	1		ŀ		•)	
TOTAL					/ (\$193,810,171)	
					· · · · · · · · · · · · · · · · · · ·	<u></u>
MSIV ACTUATOR REPLACEMENT	\$	50,000	5			Beohiel implementation costs.
SIMULATOR UPGRADE	15	300,000	·\$,			Becated more from togetable switching onterflore to contract with new enterplore leaded
UPGRADE CONDENSATE PUMPS	\$	887,000	\$			Includes Bachtel Implementation costs.
	1		H			Revised scope from returbish existing pump rotating assemblies to replace with new,
ELEC BUS SYSTEM MARGIN IMPROVEMENT	13	560,000	5			Bechtol implementation costs.
REPLACE TRANSFORMERS	15	4,388,000	3			Bechtel implementation costs.
		1 050 000	Ī.			Revised scope from replacing 4 transformers to replace 2, upgrade coolers, and swap
FW REGULATING VALVE (FRV) REPLACEMENT	\$	340.000	s			Revised scope from refurbish existing velves to cut out and replace with new valves an actuators, includes Bechtel Implementation cosis.
PROJECT RELATED O&N	\$		\$			Allowance for O&M related accounting treatment
MPLEMENT LEFM CHECK PLUS MUR	\$	1,500,000	5	1		Bechtel Implementation costs were under estimated based on Snaw scoping study, includes
REPLACE #2 HEATER DRAIN CONTROL VALVE	\$	150,300	\$			Increase in scope com 2.10 TO vario replacements, includes bechter implementation costs.
OFFICE TRAILER PARK / EQUIPMENT / CAPITAL PURCHASE	\$. 30,000	.5			the EPU project team and Bechtel, for 2 years and inclusion of Jupiter West facility.
					a and a state of the state of t	Original estimate was not sufficient for rental of outside facility large enough to house
BOP INST. & CNTRL SETPOINT, RESCALING&HOWR CHNGS	\$	210,000	\$			Based on clarification of scope as design evolves.
FEED PUNP MODIFICATION	s	1,200,000	\$		•	Revised scope from refurbleh existing pumps to replace with new, includes Bechtel Implementation costs.
PROJECT SUPPORT - 5 FPL HOME OFFICE	\$	1,976,000	\$.			total project.
NOD IFY ISOLATED PHASE BUS DUCT COOLING SYSTEM	\$	390,000	\$.			oue to increased temperatures at EPU conditions an sulo transfer feature is now required, includes Bechtel implementation costs.
CONTROL ROOM AC MARGIN ISSUE - PSLZ ONLY	1.5.	2,300,000	3	•		Component inspections identified additional scope from linkage and bus damage, siso
ALLOWANGE FOR MSK REPAIR / REPLACEMENT	*	0,000,000				Original estimate was not sufficient for safety related installation and missile protection
		6 660 000		· · · ·	· ·	MSR's are larger than existing, additional impacts to structures and systems, includer
CONDENSER MODIFICATIONS	5	800.000	s.	١		Combined all other Condenser modifications, increased acope based on vander recommendations for tube staking and sir removal piping modifications, includes Bachtel inciementation costs.
OUTAGE EXTENSION COSTS	ş.	18,000,000	s :			be adjusted based on final values from Business Operations and outage optimization determination
REPLACE 2 HF FW HTRS -# 6	\$	1,650,000	.\$	an the second		Becklei implementation costs. Ordinai estimale used \$150K per day, forecast based on \$200K per day. Engaget will
PROJECT SUPPCRI - 28 FPL/ CONTRACTORS	*	19,094,400.		· · · ·		Heaters are larger than existing, additional impacts to structures and systems,
	١. '	12 mg 1 mg				multiple outage construction modifications. Approximatly 3,000,000 manhours to
	1	•	Ť			Required support for original scope and additional scope underestimated 28 FTE's.
PLANT SUPPORT	s	-	-5			contract, offices and facilities maintenance.
	1		<u> </u>			Project Services not included in base. Includes Plant and plant craft support, Stari-up
HP / LP / GENERATOR TOTAL	\$	44,100,000	\$	· · · · ·		Primary contributer is implementation costs.(Bechtel & Siemens)

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III. Implementation - Line by line

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(1) No. 10, Number 20, New York, South Statistics, South Statistics, New York, New Yor York, New York,

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CONSTRUCTION / IMPLEMENTATI	ION			ŀ	
DESCRIPTION	ORIGINAL	CURRENT	VARIANCE		EXPLANATION / NOTES
	1	1			
UNDER-RUNS	ومحمد المصارحين وملامد الموا	يناكنه بيبة محسور ويترب	Alexandra and		
ALLOWANCE FOR SCOPE	\$ 5,000,000	\$			Allocated to other mods
CONDENSER MODS - MATERIAL CONDITION	\$ 2,500,000	\$			Scope moved to Condenser Upgrade Modification
		and a			Material costs less than estimated based on PTN bids for simular scope, includes
DEH COMPUTER REPLACEMENT	\$ 2,000,000	\$			Bechtel implementation costs.
MISC MATERIALS AND SERVICES	\$ 200,000	5			Allocated to other mode
			- Second -		
TOTAL				\$8,084,689	
		1			
SCOPEINCREASES	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	1 Same		
ROD CONTROL UPGRADE	\$ -	\$			New scope - Reliability and margin improvement
TCW HEAT EXCHANGERS	\$	\$	1		New scope not in feasibility evaluation - identified in Shaw scoping study
TURBINE GANTRY CRANE	Ş	15			New scope - Reliability and margin improvement
HEATER DRAIN / MSR SYSTEM DIGITAL CONTROLS	s -	15			New mod resulting from elimination of Feedwater Heater Digital controls.
IMPROVE HOT. LEG INJ FLOW		5	·		New scope - LAR
HEATER DRAIN PUMPS REPLACEMENT & SPARE		15			New scope resulting from Shaw BOP hydrolic modling.
INCREASE STEAM BYPASS FLOW TO CONDENSER - PSL1		5			New scope - LAR
STRENGTHEN PARTITION PLATES 4A & 4B FW HEATERS	15 -	\$		·	New scope - LAR
RESIZE MSR FLOW ORIFICES	\$ ·	15			New scope resulling from Shaw BOP hydrolic-modiling.
INCREASE USR / HP EXHAUST RELIEF CAPACITY		\$	1	4.	New scope resulting from Shaw BOP hydrolic modiling.
		L			
TOTAL				(\$50,067,251)	
	L		· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·
SCOPE DELETIONS	Constrant and a second		Sec. Standard		
ADD FW HEATER LEVEL DIGITAL CONTROLS	\$ 2,200,000	\$			Modification not required for EPU after Engineering review
REWIND CONDENSATE PUMP NOTORS FOR 6.9 KV	\$ 750,000	\$			Modification not required for EPU after Engineering review
HAIN STEAM SAFETY VALVE OR FACE CHANGE	\$ 730,500	-\$			Modification not required for EPU after Engineering review
CIRCULATING WATER PUNP REFURBISHMENT	\$ 600,000	5		•	Modification not required for EPU after Engineering review
MAIN STEAM SAFETY VALVES / PIPING MODIFICATIONS	\$ 543,000	5			Modification not required for EPU after Engineering review
DEH CONSTANT PRESSURE PUMPS	\$ 300,000	1\$			Modification not required for EPU after Engineering review
TOTAL	•	<u>i</u>	1	\$5,123,500	
	1	1	1		
GRAND TOTAL	Tree Adda tores	<u></u>	and the second		
		1	1	(\$240,669,233)	
		6	<u>n</u> .		

27 Draft -- Proprietary & Confidential Business Information



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Change Walk- Thru



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III. Line by Line – Total

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TOTAL			ŀ		
DESCRIPTION	ORIGINAL	CURRENT	VARIANCE		EXPLANATION / NOTES
OVER-RUNS		· · · · · · · · · · · · · · · · · · ·	the the stand sectors,		and a second
IP / LP / GENERATOR TOTAL	\$ 187,420,000	\$			Primary contributor is implementation costs (Bechtel and Slemens
PLANT SUPPORT	5 -	\$			Project Services not included in bass, includes Plant and plant cra support, Start-up services, Security, work controls, QA/QQ, Construction craft from supplementel labor contract, offices and facilities.maintenance.
AR	\$ 45,487,000	\$.			See Detailed LAR Analysis
ROJECT SUPPORT - 28 FPU CONTRACTORS	\$ 22,149,400	5.		•	Required support for original scope and additional scope undersetimated 28 FTE's. Currently at 52 FTE's are required to manage LAR submittals, major procumanate and multiple ouloge construction modifications. Approximately 3,0000 man-hours to implement this project. 5% total project.
EPLACE 2 HP FW HTRS -# 6	\$ 7,995,000	\$	 	•	Heaters are larger than extering, additional impacts to structures as systems, includes FAC pipe replecement, Bechtel pre-outage ram value excessive, holudes Bechtel knpiementalion-costs.
DUTAGE EXTENSION COSTS	\$ 18,000,000	8			Original estimate used \$150K per day, forecast based on \$200K p day, Forecast will be adjusted based on final values from Business Operations and outage optimization determination
LLOWANCE FOR IS REPAIR / REPLACEMENT	\$ 31,960,000	Ş .			MSR's are larger than existing, additional impacts to structures an systems, includes Bechtei Implementation costs.
CONDENSER WODIFICATIONS	\$ 1.800.000	`\$			Combined all other Condenser modifications, increased scope bas on vendor recommendations for tube staking and air removal piping modifications, includes Beohte i implementation costs.
CONTROL ROOM AC MARGIN ISSUE - PSL2 ONLY	\$ 3,840,000	\$			Original estimate was not sufficient for salety related installation ar missile protection requirements, includes Bechtlet implementation costs.
IODIFY ISOLATED PHASE BUS DUCT COOLING SYSTEM	\$ 1,040,000	5			Component inspections identified additions scope from linkage and bus domage, also due to increased temperatures at EPU condition an auto transfer fecture is now regulred; includes Bechtel implementation costs.
EED PUMP MODIFICATION	3 5,850,000	\$			Revised scope from refurbish existing pumps to replace with new, Includes Bechtel Implementation costs.
PROJECT SUPPORT - HONE 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	5			Increase in scope from 2 to 10 valve replacements, includes Bechi Implementation costs.
OP INST. & CNTRL SETPOINT, RESCALING	\$ 1,265,000	5.			Based on clarification of scope as design evolves.
OFFICE TRAILER PARK / EOUIPMENT / CAPITAL PURCHASE	s .210,000	5			Original estimate was not sufficient for rental of outside facility larg enough to house the EPU project team and Bachtel, for 2 years at incitation of Jupiter W est facility.
JPGRADE CONDENSATE PUMPS	\$ 1,658,000	\$			Revised acope from refurbish existing pump rotating assemblies to replace with new, includes Bechtel Implementation costs.
WREQULATING VALVE (FRV) REPLACEMENT	\$ 1,120,000	- 3.			Revised scope from refurblah existing values to cut out and replace with new values and actualors, includes Bachtel implementation costa;
PROJECT RELATED OAM	\$ -	\$			Allowance for O&M related accounting treatment
CONTROL ROOM HABITABILITY UPGRADES	\$ 1,270,000	. \$.			Bechtel implementation cosis:
ASIV ACTUATOR REPLACEMENT	\$ 225,000	\$.			éctuators, includes Bechtel implémentation costs.
MPLEMENT LEFM CHECK PLUS MUR	\$ 6,800,000	S			implementation costs were underestimated based on Shaw scopin study, includes Bechlei implementation costs.
SIMULATOR UPGRADE	\$ 850,000	\$			Minor
ELEC BUS SYSTEM MARGIN IMPROVEMENT	\$ 1,690,000	\$			Minor All All All All All All All All All Al
JPDATE CHECKWORK FOR FAC	5 100,000	13			IM mor

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

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III. Line by Line - Total

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TOTAL CURRENT VARIANCE EXPLANATION / NOTES UNDER-RUNS ALLOWARCE FOR SCOPE \$.000,000 \$ Allocated to other modifications CONDENSER WORS - MATERIAL CONDITION \$.300,000 \$ Scope moved to Condenser Upgrade Modification \ Scope moved to Condenser Upgrade Modification \ Scope form replacing 4 Unanformers to englice 2. Upgr colorier, and warp serves, includes Bechtel Implementation costs. REPLACE TRANSFORMERS \$ 28,438,000 \$ REPLACE TRANSFORMERS \$ 28,438,000 \$ MISC MATERIALS AND BERVICES \$ 1,430,000 \$ OPACKADES \$ 28,0400 \$ OPACKADES \$ 28,0400 \$ OPACKADES \$ 1,4212,030 OPACKADES \$ 28,000 \$ OPACKADES \$ \$ \$ <th></th> <th></th> <th>······</th> <th></th> <th></th> <th></th>			······			
DEBCRIPTION ORIGINAL GURRENT VARIANCE EXPLANATION / NOTES. UNDER-RUNS Allocated to other modifications Allocated to other modifications Allocated to other modifications CONDENSER NODS - MATERIAL CONDITION \$.3,500,000 \$ Soope moved to other modifications DEH COMPUTER REPLACEMENT \$.3,500,000 \$ Soope moved to other modifications DEM COMPUTER REPLACEMENT \$.3,600,000 \$ Soope moved to other modifications REPLACE TRANSFORMERS \$.28,438,000 \$ Revised corps form replace 2, upgl coloring, and ways spars, includes Bechtel implementation costs. REGUMATERIALS AND SERVICES \$.128,430,000 \$ Allocated to other mods COMMUNY OUTREACH \$.370,0000 \$ Allocated to other mods DOPATE EG QUALIFICATION 100 CP ACKAGES \$.370,0000 \$ Allocated to other mods SOOPE INCREASES \$.28,430,000 \$ Allocated to other mods UPATE EG QUALIFICATION 100 CP ACKAGES \$.380000 \$ Allocated to other mods SOOPE INCREASES \$.28,430,000 \$ Allocated to other mods DOTAL \$ \$<	TOTAL	•				
UNDER-RUNS 1 ALLOWANCE FOR SCOPE \$.5.000,000 \$ ALLOWANCE FOR SCOPE \$.5.000,000 \$ Scope moved to Condenser Upgrade Modification DEH COMPUTER REPLACEMENT \$.7,800,000 \$ Scope moved to Condenser Upgrade Modification Scope moved to Condenser Upgrade Modific	DESCRIPTION	ORIGINAL	CURRENT	VARIANCE		EXPLANATION / NOTES
INDER-RUND LIOWANCE FOR SCOPE Allocated to other modifications CONDENSER MODS - MATERIAL CONDITION S. 3,500,000 CONTROL	•		1		· · · · ·	
LLOWANCE FOR SCOPE \$.000.000 \$ Alboated to other modifications ODDENSER, MODS - WATERIAL CONDITION \$.3.000.000 \$ NEPLOCE TRANSFORMERS \$.000.000 \$ NEPLACE TRANSFORMERS \$.000.000 \$ NOMUNITY OUTREACH \$.370.000 \$ JOODENSER, MOLAGES \$.1460.000 \$ Allocated to other mods Allocated to other mods OTAL \$.000.000 \$ COPE INCREASES \$.000.0000 \$ COPE INCREASES \$.0000 \$ COPE INCREASES \$.00000 \$ COPE INCREASES \$.0000000000	INDER-RUNG			and the state of the	1	and a second s
CONDENSER NODS - MATERIAL CONDITION \$.3,500,000 \$ DEH COMPUTER REPLACEMENT \$ 7,800,000 \$ DEH COMPUTER REPLACEMENT \$ 7,800,000 \$ REPLACE TRANSFORMERS \$ 28,438,000 \$ REVEACE TRANSFORMERS \$ 28,438,000 \$ REVEACE TRANSFORMERS \$ 370,000 \$ Allocated to other mods COMMUNTY OUTREACH \$ 370,000 \$ Allocated to other mods COMMUNTY OUTREACH \$ \$ \$ Allocated to other mods ICOPE INCREASES \$ \$ \$ Allocated to other mods ICOW HEAT EXCHANGERS \$ \$ \$ Allocated to other mods ICOW HEAT EXCHANGERS \$ \$ \$ Allocated to other mods ICOW HEAT EXCHANGERS \$ \$ \$ \$	ALLOWANCE FOR SCOPE	\$ 5,000,000	\$			Allocated to other modifications
DEH COMPUTER REPLACEMENT \$ 7.800,000 \$ NEPLACE TRANSFORMERS \$ 28.438,000 \$ REPLACE TRANSFORMERS \$ 28.438,000 \$ NEE MATERIALS AND SERVICES \$ 1.460,000 \$ NISC MATERIALS AND SERVICES \$ 1.460,000 \$ NOMUNITY OUTRACH \$ 370,000 \$ JPOATE DE QUALIFICATION DOC PACKAGES \$ Allocated to other mode JPOATE DE QUALIFICATION DOC PACKAGES \$ Allocated to other mode JOOPE INCREASES \$ \$ Allocated to other mode JOOPE INCREASES \$ \$ \$ JOOPE INCREASES \$ \$ \$ JOOPE INCREASES \$ \$ JOO CONTROL UPGRADE \$ \$ JOOPE INCREASES \$ \$ JOO CONTROL UPGRADE \$ \$ JOO CONTROL UPGRADE \$ \$ JOO CONTROL UPGRADE \$ \$ JOO PARK DENACONTROLS \$ \$ JURBINE GAURT Y ORANE \$ <	CONDENSER MODS - MATERIAL CONDITION	\$ 3,500,000	\$		· ·	Scope moved to Condenser Upgrade Modification
PER CUMPO IER HEPLACE TRANSFORMERS \$ 7,000,000 \$ scope, includes Bechtel Implementation costs. NEPLACE TRANSFORMERS \$ 28,438,000 \$ Revised scope from replacing 4 transformers to replace 2, upgr colorer, and swap spars, includes Bechtel Implementation costs. NEE MATERILAS AND SERVICES \$ 1,460,000 \$ Allocated to other mods COMMUNITY OUTREACH \$ 370,000 \$ Allocated to other mods IODPE INCREASES \$ 1,460,000 \$ Allocated to other mods IOTAL \$ \$ Allocated to other mods IODE INCREASES \$ \$ Allocated to other mods IODO CONTROLUPGRADE \$ \$ S IODO CONTROLUPGRADE \$ \$ New scope realiability and margin Improvement IATER DRAIN PUMPS REPLACEMENT & SPARE \$ \$ New scope - LAR New scope - LAR New scope - LAR New scope - LAR Additional support and analysis, bid specifications and design Interface with EPC vector NCREASE STEAM SYRAS FLOW TO CONDENSER - F8L1 \$ \$ New scope - LAR NAW scope - LAR S New scope - LAR Additional support and analysis, bid specifications and design Interface with EPC vector		P 7 000 000				Material costs less than estimated based on PTN bids for similar
Revised scope from replacing 4 transformers 0 replace 2, upg colors, and wap space, includes Bachtel Implementation cos Allocated 1o other mods USE MATERIALS AND SERVICES \$ 14,450,000 \$ MISC MATERIALS AND SERVICES \$ 14,60,000 \$ USE MATERIALS AND SERVICES \$ 14,60,000 \$ JPOATE EQ QUALIFICATION DÓC PACKAGES \$ 250,000 \$ JPOATE EQ QUALIFICATION DÓC PACKAGES \$ 250,000 \$ JOOPE INCREASES \$ 14,4212,089 JOOC ONTROL UPGRADE \$ 4 SOC CONTROL UPGRADE \$ 4 SOC CONTROL UPGRADE \$ 5 New scope - Reliability evaluation - Identified in Shaw scop attract was scope - Reliability and margin Improvement (RATER DRAIN FUMPS REPLACEMENT & SPARE \$ 4 New scope - LAR New scope - LAR New scope - LAR New scope - LAR NARAN NON LAR ENGINEERING \$ 5 NCREASE STEAM STALE SA A 48 FW HEATERS \$ 5 NCREASE STEAM STALE SA A 48 FW HEATERS \$ 5 NCREASE STALE WYRAS STALE SA A 48 FW HEATERS	JEH COMPUTER REPLACEMENT	\$ 7,800,000	\$	é i		scope, includes Bechtel Implementation costs.
CRCFLOLE IRANOPORMERS \$ 20,480,000 \$ coloirs, and evap spare, includes 8 echtel implementation cost of the mode mode of the mode of the mode of the mode of th		¢ 00.400.000				Revised scope from replacing 4 transformers to replace 2, upgrade
MISC MATERIALS AND BERVICES \$ 1,460,000 \$ ODMUNITY OUNFEACH \$ 370,000 \$ Allocated to other mods POATE EQ QUALIFICATION DOC PACKAGES \$ 250,000 \$ Allocated to other mods OOPE INCREASES \$ 250,000 \$ Allocated to other mods OCOW HAT EXCHANGERS \$ St4,212,899 SOOD CONTROL UPGRADE \$ New scope not in feasibility evaluation - identified in Shaw scop atudy ROD CONTROL UPGRADE \$ \$ SOOD CONTROL UPGRADE \$ \$ New scope - Reliability and margin improvement New scope - Reliability and margin improvement REATER DRAIN / WAS SYSTEM DIGITAL CONTROLS \$ \$ NEURINE GARTRY ORANE \$ \$ SHAW NON LAR ENGINEE INF LOW \$ \$ NOR CARDE STEM DIGITAL CONTROLS \$ \$ SHAW NON LAR ENGINEE INF LOW \$ \$ NORALASE STEM DIGITAL CONTROLS \$ \$ SHAW NON LAR ENGINEE INF CONTROLS \$ <t< td=""><td>CEPLAGE TRANSPORMERS</td><td>\$. 28,438,000</td><td>\$</td><td></td><td></td><td>coolers, and swap spare, includes Bechtel Implementation costs.</td></t<>	CEPLAGE TRANSPORMERS	\$. 28,438,000	\$			coolers, and swap spare, includes Bechtel Implementation costs.
COMMUNITY OUTREACH \$ 370,000 [\$] POATE EQ QUALIFICATION DOC PACKAGES \$ 250,000 [\$] COTAL \$ 14,212,888 [] COMMUNITY OUTREACH \$ 250,000 [\$] DEODE INCREASES \$ 14,212,888 [] COW HEAT EXCHANGERS \$	ISC MATERIALS AND SERVICES	\$ 1,450,000	\$			Allocated to other mods
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HEATER DRAIN / MSR SYSTEM DIGITAL CONTROLS \$ - 5 CONTROL CANE \$ - 5 IVERBINE GANTRY CRANE \$ - 5 NEW SCOPE - Reliability and margin improvement Mow scope - AR NEW SCOPE AND LAR ENGINEERING \$ - 5 NICREASE STEAM BYRASS FLOW TO CONDENSER - PSL1 \$ - \$ NCREASE STEAM BYRASS FLOW TO CONDENSER - PSL1 \$ - \$ NCREASE STEAM BYRASS FLOW TO CONDENSER - PSL1 \$ - \$ NCREASE STEAM BYRASS FLOW TO CONDENSER - PSL1 \$ - \$ NCREASE MSR / HP EXHAUST RELIEF CAPACITY \$ - \$ NCREASE MSR / HP EXHAUST RELIEF CAPACITY \$ - \$ NCREASE MSR / HP EXHAUST RELIEF CAPACITY \$ - \$ NCREASE MSR / HP EXHAUST RELIEF CAPACITY \$ - \$ NOTAL - \$ - \$ SCOPE DELETIONS - \$ - \$ MAIN STEAM SAFETY VALVE ORIFACE CHANGE \$ 4.624,000 \$ MAIN STEAM SAFETY VALVE ORIFACE CHANGE \$ <t< td=""><td></td><td></td><td>4</td><td></td><td></td><td>New mod resulting from elimination of Feedwater Heater Digital</td></t<>			4			New mod resulting from elimination of Feedwater Heater Digital
TURBINE GANTRY CRANE \$ \$ MPROVE HOT LEG INJ FLOW \$ \$ MPROVE HOT LEG INJ FLOW \$ \$ SHAW NON LAR ENGINEERING \$ \$ NORRASE STEAM BYPASS FLOW TO CONDENSER - PSL1 \$ \$ STRENGTHEN PARTITION PLATES 4A & 45 FW HEATERS \$ \$ STRENGTHEN PARTITION PLATES 4A & 45 FW HEATERS \$ \$ NOCREASE STEAM BYPASS FLOW TO CONDENSER - PSL1 \$ \$ STRENGTHEN PARTITION PLATES 4A & 45 FW HEATERS \$ \$ NOCREASE MSR / LOW ORFFICES \$ \$ NOCREASE MSR / HP EXHAUST RELIEF CAPACITY \$ \$ SCOPE DELETIONS \$ 4.624,000 \$ NOD FW HEATER LEVEL DIGITAL CONTROLS \$ 4.624,000 \$ MAIN STEAM SAFETY VALVE ORIFACE CHANGE \$ 1.897,600 \$ MAIN STEAM SAFETY VALVE ORIFACE CHANGE \$ 3.400,000 \$ DEH CONSTANT PRESSURE PUMP REFURBISHMENT \$ 3.400,000 \$ DEH CONSTANT PRESURE PUMPS \$ 800,000.\$ \$ Modification not required for EPU after Engineering review MAIN STEAM SAFETY VALVES / PIPING MODI	HEATER DRAIN / MSR SYSTEM DIGITAL CONTROLS	\$ -	5			controls.
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	Orgn Dati	-Kick expt Descripton	innac		Waximum Cost Exposure (\$000)		0.0	Weighted Rak	nosc Discription	Wission Alter
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					U-1 Significant cost to modify the sleam dump system or a reduction in MWe If Toold is lowered	U-1: Plan to Increase capacity of Steard dump and Bypass System, Reviewed and accepted by Plant Health Committee U-2: Perform K-T analysis and provide recommendetions to Sentor Management. ready for Internat challerige with Chilef
2	4730,709	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 mode other than FORV replacement Risk Millijation Plah in development
3	7/19/08	Automate U1 Containment Mini- Purge – Replace manual isolation valves with automatic valves, controls and Indication – LAR	Significent	C/S					Containment diasign pressure will be exceeded without a reduction in initial containment pressure. Lower operating containment pressure earnot be maintained without a mini-purge similer 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					Shew modeling of system indicates steam entrainment in MSR dialns causing high flow through line.	Data Collection, anginearing evaluation in progress, scope has not been identified
5	7/19/09	Generator Stator Core. Hot Spots	Significant	C/S					5	Engineering evaluation in progress, scope has not been identified
8	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, & Condensale Piping Support Modifications	Significant	C/S-					Eveluate for EPU dynomic and increased thermal loads and implement recommended mods as necessary	Engineering evaluation in progress, scope has not been identified
8	7/19/09	Sleam Bypass Control System Increase Flow to Condenser – U2	Significant	cis					Plant Ing cannot be accomplished without lifting the MSSV's.	Engineering evalualion 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 numercus nozzia flow criteria exceeded at EPU conditions. Inspections will validate existing condition of the FWH's.	Engineering evaluation in prograss, scope has not been localified
10	7/19/09	BOP Piping Vibration Modifications	Significant	C/S					Evaluate existing & expected EPU vibration to BOP piping and implement recommended mode 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

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III. Risk and Mitigation

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	10 V6	Туре	SCORE AVE STRAND EVEN EXCOLUTE	Inpict Description	Migator Actor:
Pressure Increase	- Significant	C/S	Contract States	SBLOCA enalysis will not mael dosign criteria without an increase in SIT pressure.	Engineering avaluation in progress, scope has not been identified
CCW Piping Analysis / Modifications (U2 Only)	. Significant	.015		Evaluate CCW for increased thermal loads and implement recommended mods as necessary	Engineering evaluation in progress, scope has not been identified
Additional Isophase Bus Duct Air. Flow Test U1	Significant	C/S ,		Unit 1 and 2 (sophase bus duct configurations are different. Test will ensure the replacement equipment is properly sized.	Engineering evaluation in progress, scope has not been identified
SG Calorimetric Transmillers	Significant	c/s		The calorimetric uncertainty calculations show that replacement of these transmitters is necessary or steam enthalpy uncertainty will become the idominant term in the calorimetric.	Engineering evolution in progress, scope has not been identified
Westinghouse / AREVA / B&W -	Significant	c/s		Potential of labor increases to support FPL Ihrough NRC review phase.	Continue to monitor contractor performance and perform any possible evaluations in-house (lowor rates)
Shaw / SWEC - LAR	Significant	.C/5		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)
Third Party Reviews / Grid Stability - LAR	Significant	CIS		Potantial of labor increases to support FPL- through NRC review phase.	Continue to monitor contractor performance and perform any possible evaluations in-house (lower rates)
FPL Engineering - LAR	Significant	C/S		Additional personnel required to support NRC	Manage personnal and overtime.
Bechtel Engineering - Harris Modifications	Significant .	,c/s		Addillonal personnel required to support scope growth.	Continue to monitor contractor performance and parform any possible engineering in-house (lower rates). FPL manage engineering or lump sum conversion.
Shaw / SWEC - Modifications	Significant	cis		Additional personnel required to support scope growth.	Continue to monitor contractor performance and perform any possible engineering in-house (lower rates)
FPL Engineering - Modifications	Signliicant	C/S		Additional personnal required to support scope- growth.	Manage personnel and overlime.
FPL Juno PM / Engineering Support - Modifications	Signi/Icant	CIS		Additional personnel required to support scope growth.	Manage personnel and overtime.
Bechtel Procured Materials	Significant	CIS		T&M contract for Beohle!	Continue to monitor purchasing program.
Bechtel Construction	\$lgnlf cant	cis		Construction estimates supplied by Bechtel are Order of Magnitude at this time.	rasource load datall schedules. Lump sum conversion, possible (by Outage for example).
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 datail schedules.
FPL Project Management	Significant	C/S	승규는 방송에 대한 사람이 있다.	Additional personnol overtime required to control	Mønage personnel and overline.
Siemens Implementation Labor	Significant	CIS	방학은 전화방법 전한 인간에서	No contracts liave yet been signed.	Lock down lump sum contracts as soon as possible. Use any economies of scale possible,
Rod Control Modifications	Significant	CIS .		Westinghouse study not yet final:	Review vendor study to optimize system modifications and reduce cost.
Turbine Gantry Crane Upgrade	Significant	C/S	THE REAL PROPERTY AND INCOME.	Construction risk:	Control supplemental labor support and validate planning and implementation processes.

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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. Implementation Options

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

<u>Advantages</u>

-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

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

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Saint Lucie Outages Proforma ForeCast Current PSL U-1 U-2 U-1 **U-2 U-1** U-2 LAR 1/31/2010 1/31/2010 Submittal 9/1/2009 9/1/2009 9/1/2009 9/1/2009 1st Outage Duration + 20 Mwe 2nd Outage Duration In Service October April June June 2012 2012 2011 2012 Date Dec-11 Dec-11 136.5 MWE 129 5 136 5 129 5 103 103

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

*Target goal for Six Sigma Team rewind outage durations

⁵ MWe based on Slemens heat balance (contract target)

Longer duration Outages have been included in the business model

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IV. Implementing Estimates

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	Iurkey Point Outages Proforma Current Forecast N U-3 U-4 U-3 U-4 B Stehmitted U U U U U-4									
	Proforma		Current		Forecast					
PTN ·	U-3	U-4	ป-3	U-4	U-3	U-4	`			
LAR Submittal	9/1/2009	9/1/2009	6/01/10 ^{5.1}	[.] 6/01/10 ⁵	6/01/10 ⁵	6/01/10 ⁵				
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2 nd Oufage										
Duration										
n Service Date	April 2012	October 2012	May 2012	December 2012	May 2012	December 2012	E			
			2 Addressing							
MWE	104	104	118 ⁴	118 4	118 ⁴	118 4				

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 Slemens heat balance (contract target)

^s AST LAR must be approved prior to submittal of EPU LAR

Longer duration Outages have been included in the business model

49 Draft - Proprietary & Confidential Business Information

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:: Exhibit WRJ(FPL)-9

Villiam R.

Feasibility Analyses for EPU Project July 26, 2009 ESDD Meeting St. Lucie) Presentation Jacobs, Jr.

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	/7 \$7 50 /	\$91/0	\$910
Total Cost \$M	\$1,401	\$1,407/	/ \$1/497-4	7 \$ 17 06 ¹	\$1706 ¹
PSL EPU MWe	/20/6//	/ / 2\$6/ 4	//1/912 /	/ 191 ²	245 ²
PTN EPU Mwe	/ 208 / /	/ 208 _ /	// /208 /	208	236
Total EPU Mwe	414 4	414	_´´ 399 <i></i>	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

е,

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
 - 50 Draft - Proprietary & Confidential Business Information

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2009 ESDD Meeting

St. Lucie) Presentatio

51 of 52

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



2009 ESDD Meeting

R. Jacobs, Jr WRJ(FPL)-9 Lucie) Presentation

'age 52 of 52

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





Docket No. 110009-EI William R. Jacobs, Jr. **NCR-11** Exhibit WRJ(FPL)-10 Email from Kundalkar to Nazar, May 30, 2009 Page 1 of 1

FPT, 004809

From: Kundalkar, Rajly S To: Nazar, Mano Cc: Kundalkar, Rajiv S Sent: Sat May 30 09:56:51 2009 Subject: Costicionical -Legal and FL Reg Affairs discussion- Cost Recovery FPSC request for past Exec Presentations Mano:

Background:

. FPSC staff (not office of Public Council) has requested that we provide ALL previous Exec presentations and Bi-weekly CNO presentations to the staff.

I discussed the implications with Bryan Anderson, Legal Dept and Tiffany Cordes, Reg Affairs Mgr and pointed out that :

(a) all files contain tables showing potential higher MWts outputs for PSL (106 pro-forma vs 118MW-expected, per unit), and PTN (104 vs 108 MW per unit)

(b) Also recent presentations indicate Bechtel's budget requests and required man-loading to be higher than their original indicative non-binding proposal in Nov./Dec 2008. The slides also point out the path of resolution the Project team is taking to bring order in the Bechtel's proposal that includes challenging - assumptions, ramp rates, HQ charges, field manual work hour assumptions etc.

in previous planning discussions with Armando and the legal staff we had made them aware of the expected \$\$ estimates could be higher than \$750 Million for PTN and \$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 at that 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 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.

Steps between now and then are:

Ral

-Bechtel is revising their estimates per our comment and input on best, P5Ø, and Worst assumptions for ALL the scope currently on the list

-Bechtel will provide Best, P50 case, and Worst case estimates next week

-In parallel Eng/Lic working with Shaw and Plant groups will firm up must have and nice to have scope lists -Next steps will involve site VP briefing before formal Tech Steering Committee review per charter of the project -Document the outcome and results and provide that input to Bechtel for final adjustments before the 6/12 meeting if possible.

-This same process will be followed for Point Beach as well.

Terry has been briefed by me. Will keep you posted on the progress.

Please let me know if you have any thoughts or questions on the topic.

• •	Docket No. 110009-EI William R. Jacobs, Jr. Exhibit WRJ(FPL)-11
	Excerpts from Kundalkar Deposition Page 1
) .	BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION
	IN RE: NUCLEAR COST RECOVERY) DOCKET NOS:110009-EI
	CLAUSE)
)
	COPY
	·
	· – – –
	THE DEPOSITION OF RAJIV S. KUNDALKAR
)	
	•
	Wednesday, June 29, 2011
	301 Clematis Street
	Suite 3000
	West Palm Beach, Florida 33401
	1:02 - 4:55 o'clock p.m.
	· ·
	APEX REPORTING GROUP
· ·	DBA OFFICIAL REPORTING SERVICES, LLC
	12 SE 7TH STREET
	SUITE 702
	FORT LAUDERDALE, FLORIDA 33301
	(954) 467-8204
	Bandanaan lalan manananan mananan da, sebendi dalah mananan da kata manana manananan mananan manana taki sebena

Docket No. 110009-EI William R. Jacobs, Jr. Exhibit WRJ(FPL)-11 Excerpts from Kundalkar Deposition Page 25 Page 2 of 30 I'm sorry -- one hundred and six million dollars 1 for implementation for the months of April and 2 May, 2009, an increased number is shown of two 3 4 hundred and thirty million dollars, correct? Yes, it is. 5 Α. 6 So while the overall estimate is Q. 7 constant at this six eighty-two, some of the components of that have changed over time from the 8 time the indicative bid was submitted to May, 9 10 2009? I would like to explain that, but Yes. 11 Α. 12 go ahead, ask me a question, I guess. 13 I think we will get to that. Q. 14 There's another column called: Scope 15 not estimated. What does that term mean? Mr. McGlothlin, this was a fast-track 16 Α. 17 project, so when we undertook this project, we 18 were doing a number of these functions in 19 parallel. And normally when we execute these 20 large complex projects, we do initial scoping 21 study, then do detailed engineering analysis, and 22 then we do detailed engineering design. And once 23 those drawings are available, then we do construction planning, and then do construction 24 25 estimate, and at that time establish for the

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contingency or the implementation of that job and then implement.

Docket No. 110009-EI William R. Jacobs, Jr. Exhibit WRJ(FPL)-11

Page 3 of 30

Excerpts from Kundalkar Deposition Page 2 of 30 Page 26

3 That process, in the initial planning stage, would have taken us many years past the 4 year in which there was need for electricity for Florida's customers. Originally, this project was 6 going to be completed much later. So when we -so when we established there was a need for electricity of a certain magnitude in 2012 and we were asked if we were to do this as a fast-track project, can we implement that, and in doing so what are the unknowns?

And one of the unknowns, or one of the 13 things, risk factors we need to account for is 14 15 identify and allocate that there may be certain scope activities not identified as part of the 16 17 scoping study and they could be discouraged. So 18 allocate appropriate amount of money for scope not 19 identified, which will be identified as part of 20 the detailed analysis, part of the detailed 21 design. That's part of discovery.

Therefore, a large percentage of amount was placed in that bucket, which is here described as scope not estimated. As I recall it may have been in the range of forty-five or fifty percent,

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Docket No. 110009-EI William R. Jacobs, Jr. Exhibit WRJ(FPL)-11 Excerpts from Kundalkar Deposition Page 27 Page 4 of 30 1 roughly like that. So, that's what that amount 2 was. 3 You indicated that at one point the Q. 4 uprate projects were contemplated to go into 5 service at a much later date? 6 A. Yes. 7 Can you tell me approximately what time Q. 8 frame that planning took place? 9 Α. I don't know. I don't remember exactly, 10 but it was many years beyond 2012 is what I 11 To go and do these -- all these major recall. 12 activities I talked about, scoping, engineering 13 analysis, design and then implementation in series 14 would have put us many -- a significant amount of 15 time beyond 2012, and that was not in the best 16 interests of customers of Florida because the need 17 for electricity was in 2012. 18 Q. You were asked about what would a 19 fast-track approach accomplish. Who would have 20 posed that question to you? 21 A. I don't understand your question, so 22 could you, maybe, clarify what you are trying to 23 ask me? 24 I will try. Q. 25 In an earlier answer you said: We were APEX REPORTING GROUP (954) 467-8204

	Docket No. 110009-EI William R. Jacobs, Jr.
	Example VKS(FFE)-11 Excerpts from Kundalkar Deposition Page 5 of 30
1	asked about the fast-track possibility after FPL
2	had originally planned to construct the uprates in
3	the more typical fashion and have it placed in
4	service at a much later date.
5	When you say: We were asked about the
6	fast-track, who would have been posing that
7	question to you?
. 8	A. It would be senior executive management,
9	and as I recall it was a about the time when
10	, the Glades coal-fired plant was not approved for
11	construction or implementation by PSE, so it may
12	have been earlier part of 2007.
13	I'm going back on memory here, but that
14	was about the time.
15	Q. Going back to this schedule, page four.
16	A. Okay.
17	Q. Exhibit 3.
18	As I understand the math that's
19	presented here, certain components of the overall
20	total, such as engineering and the implementation
21	that I referred you to earlier, increased over
22	time. And as I understand it, any increases in
23	the total of those other components were matched
24	by offsetting reduction in the scope not estimated
25	and that's how the proforma of six eighty-two

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	Docket No. 110009-EI William R. Jacobs, Jr.
	Exhibit WRJ(FPL)-11 Excerpts from Kundalkar Deposition Page 6 of 30
. 1	BY MR. McGLOTHLIN:
2	Q. Mr. Kundalkar, I have asked you to look
3	at a document that we have marked as Exhibit 2,
4	which is the one-page e-mail memo from you to Mano
5	Nazar.
б	Am I saying his name correctly?
7	A. It's pretty close.
. 8	Q. Who is Mr. Nazar?
9	A. Mr. Nazar was my supervisor, chief
10	nuclear officer for nuclear division while I was
11	at FPL.
12	Q. You've had an opportunity to review this
13	document; have you not? .
14	A. Yeah, you gave it to me, and I had a
15	minute or two to look at it. Yes, sir.
16	Q. As I understand the content, you were
17	using this as a vehicle to inform Mr. Nazar that
18	the PSE staff was collecting copies of previous
19	presentations made to the chief nuclear officer
20	and to the Executive Steering Committee, correct?
21	A. The purpose was just to keep him
22	informed of where we are in general. That may
23	have been step number one. He may have been
- 24	traveling. I may have been traveling. I don't
25	know my schedule when or where I was on May 30th,
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	Docket No. 110009-EI William R. Jacobs, Jr.
	Exhibit WRJ(FFL)-11 Excerpts from Kundalkar Deposition Page 7 of 30
· 1	but just brief him on where we are.
2	Q. Yes, sir.
3	And in terms of telling him where you
4	were at the time in this particular briefing, you
5	were informing him that the PSE staff had asked
6	for all copies of presentations to the chief
7	nuclear officer and, I imagine, the Steering
8	Committee, correct?
9	A. That is correct, sir.
10	Q. You begin by saying that you had
11	discussed the implications with Bryan Anderson of
12	legal and Tiffany Cordes of regulatory affairs,
13	correct?
. 14	A. Yes.
15	Q. Both with FPL, correct?
16	A. That is correct.
17	Q. And specifically, you pointed out that
18	the materials requested by the PSE staff would
19	show estimates of capital costs higher than those
20	contained in the May prefiled testimony; is that
21	correct?
22	A. I think that are you referring to
23	Item B, bravo, there?
24	Q. Yes.
25	A. So Bechtel's forecast, or Bechtel's wish

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Docket No. 110009-EI William R. Jacobs, Jr. Exhibit WRJ(FPL)-II Excerpts from Kundalkar Deposition 58 Page 8 of 30 list for the forecast -- yes, yes. I'm conveying 1 2 to him that this info that I received from Bechtel 3 with respect to their preliminary forecast numbers 4 based on what is being done, and based on the man-loading that they are assuming is higher than 5 6 their original indicated nonbinding proposal. And then the paths the team was taking 7 to resolve those issues with Bechtel. 8 9 I think that is listed there. 10 Looking at the paragraph that begins Q. with the words: In previous planning discussions. 11 12 Do you see that? A. . Yes, sir. 13 14 You report that you had informed Armando Q. 15 Olivera, is that the Armando? 16 Yes, it is Mr. Armando Olivera. Α. 17 And the legal staff, that the estimates Q. 18 from Bechtel could be higher than the seven-fifty 19 for Turkey Point and six-fifty for St. Lucie, 20 correct?. 21 We had informed him of, like the A. 22 sentence says: Based on Bechtel's recent view, 23 they could be higher, but we also had pointed out 24 that we are challenging Bechtel's view. We do not 25 accept that and there are certain things they can

Docket No. 110009-EI William R. Jacobs, Jr. Exhibit WRJ(FPL)-11 Excerpts from Kundalkar Deposition Page 9 of 30 1 do to bring them to the right scope and -- scope 2 and estimate assumptions and outage optimizing and things like that. 3 4 Q. And the seven hundred and fifty million 5 dollars for Turkey Point and six-fifty million for 6 St. Lucie correspond to the indicative bid values 7 that you included in your prefiled testimony, 8 correct? 9 Α. I know you refer to that as indicative 10 bid earlier also, but I think these are the Needs 11 filing numbers. That's what they are. 12 Input from Shaw, Stone scoping studies and the indicative bids came almost a year later. 13 14 So the Needs filings were in late 2007, September, October, 2007. Bechtel indicative bids came, I 15 16 think, in late 2008. 17 But, right, they are very, very close to 18 each other. But I'm referring to the Needs 19 filing. That's what I'm referring to. 20 Q. So on the one hand in the Needs filing 21 and in the May, 2009 testimony, you had presented 22 testimony reporting that the overall cost estimate 23 was unchanged and at the same time PSE staff had 24 requested copies of presentations which would 25 indicate that from the Bechtel perspective those

Docket No. 110009-EI William R. Jacobs, Jr. Exhibit WRJ(FPL)-11 Excerpts from Kundalkar Deposition Page 10 of 30 Page 60

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costs were increasing, correct?

A. It was a long question you asked, so please ask me that question again because I lost you there in the question.

Q. I will take this from the memo that you have explaining to Mr. Nazar that on the one hand in the Needs case and in the Nuclear Cost Recovery case, most recently in the May, 2009 testimony, FPL had presented a cost estimate that had not changed either from the Needs case or slightly from the indicative bid. And it indicated that there was no need to modify it at this time, correct?

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A. Yes, that is correct.

Q. And then the additional piece of
information conveyed to Mr. Nazar was that the PSE
staff had requested copies of presentations which
would have reflected the fact that the estimates
being received from Bechtel were higher than those
being report in your testimony?

A. I don't think I would -- the purpose of
this memo was to, well, first of all, make him
aware that there was some confidential
presentation information being requested.

So that's part one.

Docket No. 110009-EI William R. Jacobs, Jr. Exhibit WRJ(FPL)-11 **Excerpts from Kundalkar Deposition** Page 61 Page 11 of 30 1 Part two is make him aware that our current status with Bechtel, which is input --2 . 3 preliminary input, unverified, not challenged, 4 based on preliminary engineering, are higher and 5 we are in the process of resolving those as they 6 are discussed in these presentations. 7 And so that's what -- that's all I'm 8 trying to communicate here. 9 As chief nuclear officer, he would have 0. 10 received the presentation for the May, 2009 11 Executive Steering Committee, correct? 12 He would have, but I don't know if he Α. 13 was here, or if he was traveling. I just don't 14 recall. I just don't recall. 15 I just wanted him to be aware that there 16 are some confidential -- these -- as you saw the 17 label, they are confidential presentation 18 packages, and I wanted him to be aware that 19 certain information is being requested and we are 20 going to make that available. 21 And it has the following things because 22 he may be traveling. I just don't know where he 23 was. I just wanted to make him aware of that --24 what is being communicated to the -- and how we 25 are fulfilling staff's request.

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		Docket No. 110009-EI William R. Jacobs, Jr.
\mathbf{O}		Excerpts from Kundalkar Deposition Page 12 of 30 Page 62
X	1	Q. And in the first paragraph you say that
	2	you had discussed the implications of the PSE
	3	staff's request.
	4	Isn't it true that the implications
	5	include the fact that FPL's testimony filed in
	6	May, 2009 contained one estimate of overall costs,
	7	whereas the presentations being made to the chief
	8	nuclear officer and the Steering Committee showed
	9	a trend of increasing costs above that level?
	10	MR. FEIL: Object to the form of the
	11	question.
\frown	1.2	It's leading.
	13	You can answer the question if you
	14	understand it.
	15	THE WITNESS: No, I don't understand
	16	the question, sir.
	17	Can you break it down into simpler
	18	questions for me to understand?
	19	BY MR. McGLOTHLIN:
	20	Q. Well, for instance, were you concerned
	21	about the fact that the presentations being made
	22	to the chief nuclear officer and the Steering
	23	Committee contained indications of costs higher
	24	than those that were being reported to PSE?
0	25	A. Absolutely not. Absolutely not, because

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Docket No. 110009-EI William R. Jacobs, Jr. Exhibit WRJ(FPL)-11

Excerpts from Kundalkar Deposition Page 13 of 30 Page 63

the same presentations also highlighted, as you went through that earlier package, steps being taken to resolve those differences and address those concerns.

So absolutely not.

Q. Yes, they indicated steps were being taken to resolve the differences between FPL and Bechtel and as one ramification of that, did you have in mind when you wrote this memorandum that in conjunction with resolving the differences with Bechtel, you would also take whatever steps would be appropriate to reconcile, if that's the right word, the testimony to the estimates being resolved?

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A. None of that even crossed my mind.

This was strictly to make him aware that these -- this information is being requested. It has these discussions. At the same time there's higher megawatt output being produced by the plant, make him aware of that. The Needs filing had different numbers, and this information would be provided to the Commission.

Just make him aware of that.

Q. If you will, read for me the two paragraphs beginning with the words: In previous

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Docket No. 110009-EI William R. Jacobs, Jr. <u>Exhibit WRJ(FPL)-11</u>

Excerpts from Kundalkar Deposition Page 14 of 30 Page 64

planning discussions.

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A. In previous planning discussions with Armando and the legal staff, we had made them aware of the expected dollar estimates could be higher than seven hundred and fifty million for Turkey Point and six hundred fifty million for Port St. Lucie based on Bechtel's recent view.

8 Therefore, in May testimony we indicated 9 that FPL would update this related information as 10 soon as final analysis and designs are completed. 11 Armando's advice at that time was to introduce the 12 topic and collect and finalize the facts and scope 13 for further submittal at appropriate time.

14 Q. And the next paragraph, please? 15 А. Therefore, the timing of getting the 16 scope firmly defined and validation of estimates 17 becomes very important. We have laid out a 18 schedule that Bechtel and Turkey Point and 19 St. Lucie and corporate headquarter team are 20 working to be ready for FPL/Bechtel meeting 21 scheduled for June some date. And we will need 22 the same information for your review and Robo for 23 meeting in May to late June.

24 Q. Do I understand correctly that when you25 said the timing of needing the scope firmly

Docket No. 110009-EI William R. Jacobs, Jr. Exhibit WRJ(FPL)-11

Excerpts from Kundalkar Deposition Page 15 of 30 Page 65

defined and validation of estimates are becoming very important, that relates to the fact that the May testimony maintained the original estimate with the proviso that it would be updated at the appropriate time? A. No, there was no such tie. It was

strictly: We need to get this scope firmly 7 defined and estimates validated as soon as 8 possible because we have a meeting, a new Exec. 9 Steering Committee meeting, coming up with 10 Mr. Robo in mid to late June. We need to have 11 that information. The sooner we resolve these 12 differences, we can have a firm picture of where 13 14 we stand.

15 Q. When you use the terms getting the scope 16 firmly defined and validation of estimates, you're 17 referring to the process of resolving your

18 differences with Bechtel, correct?

A. Yes.

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- Q. And ---
 - A. Go ahead.

22 Q. And that resolution was to take place as 23 we discussed earlier within the thirty-day time 24 frame from late May to late June?

A. As it was laid out in that May

Docket No. 110009-EI William R. Jacobs, Jr. Exhibit WRJ(FPL)-11 Excerpts from Kundalkar Deposition Page 66 Page 16 of 30 1 presentation, yes, sir. 2 Q. As we discussed, engineering of the 3 project at this stage was at a very early point, 4 correct? 5 Α. Very low percentage of engineering, yes. 6 Q. So when you say getting the scope firmly 7 defined, you don't mean completion of design 8 engineering, do you? 9 No, I don't mean that. Α. 10 Q. And when you say validation of 11 estimates, you're not talking about the final 12 estimate that comes out of the detailed 13 engineering, are you? 14 Α. No, it is validation of assumptions 15 Bechtel is making in giving us these preliminary 16 estimate numbers because we have serious questions 17 and doubts about assumptions they were using and 18 their man-loading preparation and overly 19 conservative. 20 That's what we mean by validation. 21 Then you lay out the steps for that Q. 22 process and they are the same steps, or 23 essentially the same steps, that were included in 24 the power point presentation that you and I 25 discussed earlier, correct?

Docket No. 110009-EI William R. Jacobs, Jr. Exhibit WRJ(FPL)-11 **Excerpts from Kundalkar Deposition** Page 67 Page 17 of 30 1 Let me look at it and then I --Α. I don't know 2 Yes, that is very similar. 3 word-by-word, but I think it captures the chart adequately. 4 5 Looking again at the paragraph that Q. begins with the words: In previous planning 6 7 discussions. 8 A. Yes. The last sentence in that paragraph was: 9 Q. Armando's advice at that time was to introduce a 10 11 topic and collect, finalize the facts and scope for their submittal at the appropriate time, 12 13 correct? 14 Yes. Α. 15 And the first word in the next paragraph Q. 16 Therefore, correct? is: 17 Yes. Ä. So, doesn't the substance of the 18 Q. 19 paragraph that begins with the word therefore 20 relate to the concept of collecting and finalizing 21 the facts and scope before the submittal at the 22 appropriate time? I did not even think about why I wrote 23 Α. that word therefore. I did not even think about 24 25 it then and I cannot even see it now. APEX REPORTING GROUP (954) 467-8204

Docket No. 110009-EI William R. Jacobs, Jr. Exhibit WRJ(EPL)-11 **Excerpts from Kundalkar Deposition** Page 68 Page 18 of 30 1 It just says: We need to get the scope 2 firmly defined because we need to have that for 3 our own planning purposes, for our own executive 4 presentation. And the sooner we get a good handle 5 on the scope and the associated costs, it is best 6 for the project -- next steps for the project. 7 . Q. Below the bullet points this sentence 8 Terry has been briefed by me. appears: 9 Yes. Α. 10 Q. Is that Terry Jones? 11 It is Terry Jones. A. 12 What was his position at the time? Q. 13 Terry Jones was the vice president for Α. 14 the midwest region in charge of certain plans, but 15 he was also the vice president who was responsible 16 for Technical Review Committee. 17 If you recall, you asked me some 18 questions about what is a Technical Review 19 Committee and who headed that. So, he was the 20 . independent vice president who would have seen 21 some of the scope reduction or addition items 22 coming from this committee to let him know that 23 when these become available, you are not 24 surprised, so we would like to have a quick 25 turnaround of their reviews.

Docket No. 110009-EI William R. Jacobs, Jr. Exhibit WRJ(FPL)-11-Excerpts from Kundalkar Deposition Page 10 of 30 Page 69 Page 19 of 30 You were not aware -- or let me ask you 1 Q. Were you aware at the time that 2 this way: Mr. Jones was slated to be the vice president of 3 uprates division? 4 A. Not on May 30th, absolutely not. In 5 fact, this was strictly for the purpose that I б That's why I briefed him. And I kept 7 described. him briefed on similar activities before and after 8 9 this. At the time you wrote this memorandum to Q. 10 Mr. Nazar, did you consider the point of which 11 these challenged items with Bechtel would be 12 resolved as an appropriate time to consider 13 whether your testimony should have been updated to 14 reflect the higher estimates? 15 Please ask me the question again, sir. 16 Α. When I wrote this memo, what was the 17 question then? 18 Your memorandum refers both to your 19 0. 20 testimony --Uh-huh. 21 Α. -- and to the concept that it would 22 Q. be -- that any revisions would be submitted at the 23 appropriate time. 24 Uh-huh. 25 A. APEX REPORTING GROUP (954) 467-8204

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Docket No. 110009-EI William R. Jacobs, Jr. Exhibit WRJ(FPL)-11 **Excerpts from Kundalkar Deposition** Page 70 Page 20 of 30 It also addresses the challenges to Q. 1 Bechtel's increased estimates and steps being 2 taken to resolve that. 3 Yes, sir. 4 Ά. When you wrote this memorandum, did you 5 Q. regard the point at which those contentions with 6 Bechtel would be resolved as the appropriate time 7 to consider whether your testimony should be 8 9 updated? Sir, are you asking me what was my 10 Ά. thought process to when I would be updating my 11 testimony based on what -- Bechtel completing 12 these action items? 13 Yes. 14 Q. Bechtel action items were just a small 15 Α. part of the overall scope of the picture of the 16 17 project. This was an important part of that, but 18 there were a number of other activities, such as 19 the engineering analysis, which were required to 20 complete the scope definition of the project, or 21 the licensing analysis, which required -- needed 22 to be completed. 23 So, all those things needed to be 24 completed, and once we have that complete picture 25

Docket No. 110009-EI William R. Jacobs, Jr. Exhibit WRJ(FPL)-11 **Excerpts from Kundalkar Deposition** Page 71 Page 21 of 30 1 and a corresponding Bechtel estimate, that would 2 be the right time to update -- to revise the estimate for total inservice cost of the project, 3 once you have all those facts in hand. 4 5 Bear with me. I did not get your full Q. 6 answer there. I did not understand everything you 7 told me. 8 Break it down. A. 9 When would be the appropriate time to Q. 10 reconsider? 11 Α. Once we have engineering designs 12 complete, we have a firm understanding of the 13 scope, and a firm estimate from Bechtel and other 14 implementers, fully vetted, challenged, and 15 accepted by FPL management, that would be the time 16 to apprise or revise the Needs filing or -- not 17 the Needs filing, or the cost of completion of the 1.8 project in its entirety. 19 When you say design complete, are you Q. 20 talking about the full design engineering 21 specifications? 22 Α. Yes. 23 How long did you think that would take Q. 24 at the time? 25 It may -- now, this is what I recall Ά.

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Excerpts from Kundalkar Deposition Page 22 of 30 Page 72

from memory. I don't remember. It was in 2010 or 2011 time frame. It was not something -- I mean, pieces of it would be completed in pieces, but that picture was somewhere between 2010 and -11, if I can subject to check. If I can say that.

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I think that is roughly my memory.

Q. So based on your answer, do I understand correctly that from your perspective there would be only two data points in terms of testimony on the estimates of the costs? There would be the indicative bid, which is zero to fifty percent, or two percent design engineering. Then there would be the final full-blown design engineering process completed, one hundred percent done, and that would be the second time you testified as to an estimate?

A. I don't know that because I think once a
year we have to look at completed work, as I
recall. And once a year review the picture in
March or May, I forget. And my time of making
filing to see what is the new information
available and revise that.

So, if not one hundred percent of scope,
if fifty, sixty percent of the scope was
well-understood, defined in 2010, maybe that may

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Excerpts from Kundalkar Deposition Page 23 of 30 Page 73

have been the time.

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I don't know the formats of what you're asking, but I had not thought about them as the only two points. There may have been opportunities in between based on the completed work, challenged, vetted, accepted by FPL and formation of the view of what the total cost of the project would be.

9 Q. So the components that would go into 10 consideration of whether to update one's testimony 11 would include additional information relating both 12 to the Bechtel work and also relating to the 13 defined scope of the project?

A. That is correct. I mean, in reverse
order. Define scope of the project and then what
is the corresponding Bechtel.

But with that you are assuming that Bechtel may do all of the scope. There may be other parts of it. Like, some of the scope may be done inhouse. Some of the scope may be done by others. And once that decision is made and the picture developed, that would be the time.

It's not like Bechtel would be given all
the scope. FPL had not, as I recall at that time,
made a decision on Bechtel would be given all the

Docket No. 110009-EI William R. Jacobs, Jr. Exhibit WRJ(FPL)-11 Excerpts from Kundalkar Deposition Page 74 Page 24 of 30 Maybe parts of it could be implemented 1 scope. more cost effectively by other means. 2 Those steps needed to take place to 3 formulate what would be the total cost of the 4 project and in May we hadn't reached that point. 5 After you sent this memorandum to 6 0. Mr. Nazar, did the memorandum generate any 7 additional discussions about the content of the 8 memo, either with respect to the testimony, or 9 with respect to the Bechtel items that were 10 subject to challenge? 11 I think it's a broad question, so if you 12 Ά. can break it down. 13 So can you break it down because --14 please ask that question a little more so I can 15 answer it. 16 So, I wrote the memo to Mr. Nazar and 17 then your question is? 18 Did Mr. Nazar respond to you either in 19 Q. writing or orally on the contents? 20 Verbally he responded by whenever we saw 21 Α. each other in the next morning, next week, 22 whenever the next time. Yes, I understand: Yes, 23 I understand the steps you are taking and that's 24 the right course of action. 25

Docket No. 110009-EI William R. Jacobs, Jr. Exhibit WRJ(FPL)-11 Excerpts from Kundalkar Deposition Page 75 Page 25 of 30 Some words to that effect. 1 By the steps you were taking --2 Q. With respect to Bechtel in challenging 3 A. them, working towards better definition of scope, 4 getting better handle on what the forecast --5 Bechtel forecast should be. 6 There were a number of items Bechtel had 7 not considered. Make them consider those. 8 There's a line item there in the middle 9 we did not get to. Challenging Shaw and some of 10 the other groups and to firm up what the scope 11 needs to be. Nice to have, but it says: Must 12 13 have scope. So all those steps are the right steps 14 to reach towards -- what is that a line of, better 15 challenge and FPL management accepted estimate. 16 Did Mr. Nazar in his response 17 0. communicate anything with respect to the 18 information that the PSE staff was requesting 19 presentations that showed Bechtel's higher 20 numbers? 21 22 A. No, absolutely not. Because we had committed to providing 23 the staff and Commission anything and everything 24 they asked, and this was a step in that direction. 25 APEX REPORTING GROUP (954) 467-8204

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X	. 1	I was just keeping everyone involved
~	2	apprised of that.
	3	Q. Did anyone else communicate with you
	4	with respect to the memo you wrote to Mr. Nazar?
	5	A. I don't think so.
	6	MR. FEIL: Objection. I think the
	7	question is confusing because there's no
•	8	time frame put in it and it could be from
	9	the day it was written until some time in
	10	memoriam.
•	11	So, it may have been I think that is
	12	one of the reasons he was having trouble
P	13	understanding your question. So
	14	THE WITNESS: Yes, sir.
	15	BY MR. McGLOTHLIN:
	16	Q. The memo was written May 30th, 2009, at
	17	any point from May 30 of 2009 to the end of
	18	September, 2009, did anyone correspond or
	19	communicate with you about this memorandum?
	20	A. No, I don't recall anyone coming back,
	21	talking to me, or writing any e-mail in response.
	22	I just don't remember that.
	23	Q. I'm going to provide another document to
	24	the deponent.
	25	This will be Exhibit Number 4.

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	• .	Docket No. 110009-EI William R. Jacobs, Jr. Exhibit WR MRP1-11
5		Excerpts from Kundalkar Deposition Page 27 of 30 Page 131
X	. 1	revise the prefiled testimony, that was with the
	2	knowledge of senior management?
	3	A. It was. I could not make that decision
	4	just on my own, sir. This was a company decision.
	5	I also believed in their decision. I
	6	firmly believe in the action plan actions that
	7	were laid out. I believe that they needed to be
	8	completed before you could revise that testimony
	9	because also company's position and that's what I
	10	shared in that testimony, sir.
	11	MR. McGLOTHLIN: I have one more
	12	document.
\mathcal{O}	13	(Thereupon, Exhibit Number 6 was Marked
	14	for Identification and is attached
	15	hereto.)
	16	BY MR. McGLOTHLIN:
	17	Q. Number 6 is captioned: Extended Power
	18	Uprates, Executive Steering Committee, St. Lucie
	19	and Turkey Point, September 9th, 2009.
	20	Sir, I will represent to you that this
•	21	document was provided to us in response to a
	22	discovery request, and the request was for the
	. 23	presentations made to the Executive Steering
	24	Committee.
0	25	A. Yes, sir.

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Docket No. 110009-EI William R. Jacobs, Jr. Exhibit WRJ(FPL)-11 Excerpts from Kundalkar Deposition 132 Page 28 of 30 This is the one prepared for the meeting 1 Q. 2 September 9th, 2009. 3 Now, at what point did you change 4 jobs -- job titles? 5 It was changed in the beginning of Ä. August, sir. 6 7 Were you involved in any way in the Q. 8 preparation for the September Executive Steering Committee? 9 10 I was absolutely not involved in any Α. 11 aspect of it, other than the work with the Commission. 12 13 So you would not have reviewed or --Q. 14 I did not even know such a document Α. 15 I did not see it until maybe two or existed. 16 three days ago. I did not attend this meeting, so 17 I have no knowledge of what other details. 18 I have seen it since, so I can relate to 19 what the information reads. 20 Q. You probably answered this question 21 already, but look at page nine. 22 Α. Can I just flip through it, sir? 23 It is very difficult just to go to a 24 random page in a document that you are not 25 familiar with. You lose context with what is
	_	Docket No. 110009-EI William R. Jacobs, Jr.
		Excerpts from Kundalkar Dengsition 33 Page 29 of 30
	. 1	being said here.
	2	Q. Take the time you need, sir.
	3	A. I'm on page nine.
	4	Q. You will see, and this is for Turkey
	5	Point, I think, isn't it?
	6	Yes. It was both.
	7	A. I think on the left-hand side it says
	8	PSL.
	9	Q. St. Lucie. It shows both. I had to
	10	take a minute to orient myself on it.
	11	Do you see that with respect to the cost
	12	estimates that correspond in format with the ones
	13	, you are familiar with?
	14	A. Uh-huh.
	15	Q. For St. Lucie, the total estimate
	16	increased from July of '09 from seven hundred and
	17	ninety-five million to eight hundred and
	18	thirty-one million dollars.
	19	A. I see that numbers have changed, but I
	20	don't know the basis for it, sir. I see the
	21	numbers.
	22	Q. I'm not asking you to explain the basis.
	23	Just
	24	A. Yes.
	25	Q. Please look at the information displayed

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and the second second

Docket No. 110009-EI William R. Jacobs, Jr. Exhibit WRJ(FPL)-11 Excerpts from Kundalkar Deposition 34 Page 30 of 30 1 there. 2 A. Okay. For Turkey Point the corresponding cost 3 0. estimate increased from nine hundred and nine Δ million dollars in July to a billion nineteen 5 'million dollars in August. 6 Do you see that? 7 Yes, sir. 8 A. Were you aware of those August estimates 9 Q. at the time you testified to the commission? 10 Absolutely not. I did not even know 11 A. such a document was being prepared or existed. 12 MR. McGLOTHLIN: Let me take a couple 13 of minutes to review my notes. I may be 1+ 15 ready to wrap up. (Thereupon, a brief break was taken.) 16 17 BY MR. McGLOTHLIN: Mr. Kundalkar, with whom did you speak 18 Q. 19 in preparing for this deposition? 20 I spoke with my attorneys. A. Did you speak with anybody from FPL? 21 Q. I have not had any direct contact with 22 A. FPL regarding this deposition. 23 MR. McGLOTHLIN: I have no further 24 25 questions.

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Docket No. 110009-EI William R. Jacobs, Jr. Exhibit WRJ(FPL)-12 FPL Response to OPC Interrogatory No. 19 Page 1 of 1

Florida Power & Light Company Docket No. 110009-El OPC's Fifth Set of Interrogatories Interrogatory No. 19 Page 1 of 1

Q.

Please identify all persons within FPL to whom the fact of the updated July 2009 feasibility analysis and the results of the updated July 2009 feasibility analysis were communicated (whether by oral, written, or electronic means), and state when the communication(s) took place. Was the witness who sponsored the feasibility analysis for the uprate projects during the September 2009 hearings informed of the July 2009 feasibility analysis that employed revised cost estimates and other inputs prior to the hearing?

A.

Please see FPL's response to OPC's Fourth Set of Interrogatories No. 13, explaining that this was a sensitivity analysis and not an update to FPL's feasibility analysis, and FPL's response to OPC's Fourth Set of Interrogatories No. 15 for the list of persons and dates of communications. The witness who sponsored the feasibility analysis (filed in May 2009) during the September 2009 hearing was not aware of the sensitivity analysis prior to the hearing.

The witness performed the feasibility analysis based on the non-binding cost estimate that existed at the time. His analysis showed that the EPU project continued to be cost-effective and provide positive customer benefits. The sensitivity analysis, on the other hand, was performed by someone else simply to examine a "what if" alternate cost scenario that was based on preliminary vendor estimates that had not been fully vetted or accepted. That sensitivity analysis also showed that the project would be in customers' best interests, even assuming a higher cost than the Company's then-existing non-binding cost estimate. Docket No. 110009-EI William R. Jacobs, Jr. Exhibit WRJ(FPL)-13 FPL Response to OPC Interrogatory No. 82 Page 1 of 2

Florida Power & Light Company Docket No. 110009-EI OPC's Eighth Set of Interrogatories Interrogatory No. 82 Page 1 of 2

Q.

This interrogatory refers to FPL Bates Nos. 000221-000279, of the Power Point slide presentation for the September 9, 2009 meeting of the Executive Steering Committee.

- a. When were estimates of the overall costs of completing the uprate projects shown on Bates No. 000229, of the Power Point slides prepared, and who prepared them?
- b. Please identify, by name and position title, the FPL employees who participated in the preparation of the presentation package; the persons who received the presentation package; and the date(s) on which the presentation package was furnished to them. Was Mr. Rajiv Kundalkar furnished the presentation package or informed of the estimates of the costs of completing the uprate projects contained in the presentation package? If so, when were they provided to him?
- c. Please identify the persons who attended the September 9, 2009 meeting of the Executive Steering Committee.

A.-

- a. The cost estimates and forecasts shown on Bates No. 000229 are EPU *total* project estimates and forecasts, not overall *costs of completing* the uprate projects (they are not "to go" costs). The "Original" estimates shown on Bates No. 000229 were prepared in 2007. The "July 09 Estimates" shown on Bates No. 000229 were prepared in July 2009. The "August Forecasts" shown on Bates No. 000229 were prepared in August 2009. The Original estimates were based on preliminary feasibility and scoping studies and were prepared by FPL personnel prior to forming the EPU project team in 2007. Both the July 09 Estimates and the August Forecasts were prepared by FPL's EPU project controls groups at PSL and PTN.
- b. The presentation package for the September 9, 2009 Executive Steering Committee meeting was prepared by William Ball EPU Support Services under the direction of Steve Reuwer EPU Implementation Owner South, Don Fleetwood EPU Controls Director, Liz Abbott EPU Licensing and Regulatory Interface Director, Martin Gettler Vice President New Nuclear Projects, and Terry Jones Vice President Nuclear Power Uprate. The persons who received the presentation are listed below in response to part (c). Those persons likely received the presentation on or slightly before September 9, 2009. Additionally, after the meeting, others within the EPU project would have had access to the presentation. To FPL's knowledge, Mr. Kundalkar was not furnished the presentation package or informed of the cost estimates included in the presentation package.

Docket No. 110009-EI William R. Jacobs, Jr. Exhibit WRJ(FPL)-13 FPL Response to OPC Interrogatory No. 82 Page 2 of 2

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- c. The following persons were invited to attend the September 9, 2009 meeting of the Executive Steering Committee and/or included on the meeting agenda. FPL does not maintain a record of who actually attended.
 - 1. Jim Robo

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- 2. Mano Nazar
- 3. Art Stall
- 4. Mitch Davidson
- 5. Terry Jones
- 6. Steve Hale
- 7. Don Fleetwood
- 8. Sol Stamm
- 9. Robert McGrath
- 10. Martin Gettler
- 11. Steve Reuwer
- 12. Deb Caplan
- 13. Dan Tomaszewski
- 14. Liz Abbott
- 15. Mike Moran
- 16. Bill Yeager