

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

**DOCKET NO. 110009-EI
FLORIDA POWER & LIGHT COMPANY**

**IN RE: NUCLEAR POWER PLANT COST RECOVERY AMOUNT
TO BE RECOVERED DURING THE PERIOD
JANUARY - DECEMBER 2012**

REBUTTAL TESTIMONY & EXHIBITS OF:

TERRY O. JONES

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1 **BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION**

2 **FLORIDA POWER & LIGHT COMPANY**

3 **REBUTTAL TESTIMONY OF TERRY O. JONES**

4 **DOCKET NO. 110009-EI**

5 **JULY 25, 2011**

6
7 **Q. Please state your name and business address.**

8 A. My name is Terry Jones and my business address is 700 Universe Blvd., Juno
9 Beach, FL 33408. I am employed by Florida Power & Light Company (FPL)
10 as Vice President, Nuclear Power Uprate.

11 **Q. Have you previously provided testimony in this docket?**

12 A. Yes.

13 **Q. Are you sponsoring any rebuttal exhibits in this case?**

14 A. Yes. I am sponsoring the following exhibits, which are attached to my
15 rebuttal testimony:

- 16 • TOJ-28, FPL's Response to OPC's Sixth Set of Interrogatories No. 47
- 17 • TOJ-29, SL 1-24 Design Engineering Production

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

19 A. My rebuttal testimony addresses the direct testimony provided by William R.
20 Jacobs on behalf of the Office of Public Counsel (OPC). Additionally, I
21 briefly respond to the testimony of Staff witnesses Lynn Fisher and David
22 Rich.

23 **Q. Please summarize your rebuttal testimony.**

1 A. Witness Jacobs criticizes the Company's 2007 decision to perform the Extend
2 Power Uprate (EPU) project on an expedited basis in a manner that implies
3 any "fast track" project is an imprudent one. That is simply not the case.
4 Expedited projects may present unique risks (as I have consistently testified
5 to), but as described by FPL Witness Sim, this expedited approach was in
6 2007 and remains today the approach that maximizes benefits for FPL's
7 customers.

8
9 Witness Jacobs also questions the current status of the EPU project,
10 characterizing the information I have provided in testimony about project
11 uncertainties as some sort of revelation that the EPU project is a difficult one.
12 This section of Witness Jacobs's testimony offers little new insight and fails to
13 disparage the project in the manner attempted.

14
15 Staff witnesses express some concern over costs associated with three "work
16 stoppages" that have occurred. Work stoppages, however, are not only
17 routine but are an appropriate response to personnel errors. FPL's actions in
18 hiring the particular vendors at issue, providing necessary training and
19 oversight, and working to minimize any schedule or cost impact have been
20 prudent.

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EPU PROJECT APPROACH (2007-2011)

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Q. Please respond to Witness Jacobs’s assertion that the EPU project is “unsuitable” for the fast track approach (p. 7).

A. Every capital project undertaken by a utility company, including expedited projects, will involve challenges and benefits. In the case of the EPU project, it faces increased schedule risk, for example, but will also provide benefits in the form of more baseload, emission-free megawatts electric (MWe) to customers sooner. In fact, FPL’s customers are currently benefitting from an additional 29 MWe from St. Lucie Unit 2 as a result of the expedited approach FPL has taken. The fact that challenges exist does not indicate that the project is ill-suited for an expedited approach – to the contrary, it is expected that challenges will be faced.

Q. How long has this been the project approach?

A. This has been the consistent approach taken, and discussed in testimony, since FPL applied for a Need Determination in 2007. I personally have consistently testified to and worked to explain this approach – consisting of the four overlapping project phases of Licensing, Long Lead Procurement, Engineering, and Implementation – for the last two years. It is surprising that any party would now, four years later, take issue with this aspect of the EPU project.

Q. How long would the EPU project have taken if FPL did not decide to expedite it in 2007?

1 A. If FPL had chosen to perform each phase of the project in sequence – and
2 perform all the necessary design engineering prior to beginning any of the
3 implementation – the project would have taken a total of approximately
4 eleven and half years, or six years longer than the current EPU project
5 schedule. This was explained in my response to OPC’s Sixth Set of
6 Interrogatories No. 47, attached as Exhibit TOJ-28.

7 **Q. What would be the project cost impact if FPL had implemented the EPU**
8 **project phases in series rather than as a fast track project?**

9 A. For the following reasons, FPL expects that the total cost of the project would
10 have been significantly greater if FPL worked the EPU project phases in
11 series:

- 12 • Costs for project personnel would have been greater due to reduced
13 efficiencies, lost continuity, increased turnover, and longer durations
14 for project personnel.
- 15 • Equipment costs would be greater due to escalation in fabrication and
16 commodity prices.
- 17 • Vendor pricing would be greater due to increased risk of longer time
18 frame to implement the project.
- 19 • Carrying charges charged to the customers through the Nuclear Cost
20 Recovery Clause, would be much greater due to longer time periods
21 between expenditures and placing equipment in service.
- 22 • Overhead and indirect costs would be much greater for an eleven and a
23 half year project than for a five and a half year project.

1 **Q. Witness Jacobs claims that FPL had “little grasp” of what the capital**
2 **costs would be at the beginning of the project. How do you respond?**

3 A. I disagree with Witness Jacobs’s description of the 2007 non-binding cost
4 estimate. FPL’s estimate at that time was reasonable, in that it was consistent
5 with the earliest stages of the project and the information that was known at
6 that time. FPL’s witnesses have consistently testified that additional License
7 Amendment Request (LAR) engineering and design engineering would
8 provide greater cost certainty, in an attempt to keep all parties fully informed
9 of both the approach toward the project as well as the maturity of the cost
10 information in hand. This approach was not in error – rather, it was a
11 deliberate choice to bring the EPU project benefits to customers in the
12 quickest, most cost-effective manner. For reasons described by FPL Witness
13 Sim, the economics continue to prove that this was the right choice.

14 **Q. Do you agree that FPL was “slow to recognize and take into account early**
15 **indications that its initial cost estimates were inadequate” (p. 7)?**

16 A. No. Witness Jacobs’s assertion fails to recognize all that has been disclosed
17 about this project from its inception. First, he implies that the “initial cost
18 estimates” were expected to be final and unchanging (and because they did
19 change, they were “inadequate”). That was never the case. The initial cost
20 estimates were based on preliminary scoping studies and of course subject to
21 change as additional LAR engineering and design engineering was completed.
22 Additionally, FPL was fully responsive to all potential cost increases –
23 whether due to scope growth or new estimates from its Engineering,

1 Procurement, and Construction (EPC) vendor. FPL's response was to
2 challenge such increases and mitigate them where possible. This, of course,
3 was an attempt to keep costs low for the benefit of FPL's customers. To "take
4 into account" these early estimates in the manner OPC is implying – i.e., to
5 accept them as the inevitable result and plan to incur them – would have
6 significantly eroded FPL's efforts to control costs.

7 **Q. Witness Jacobs implies on the bottom of page 15 that because of FPL's**
8 **approach, it could only hire an EPC contractor on a "time and materials"**
9 **basis. Please respond.**

10 A. Time and materials contracts are standard project management tools. Initially,
11 using a time and materials EPC contract provided FPL management the
12 greatest control of vendor costs and work scope. As the LAR engineering and
13 design engineering progressed, the work scope became more defined. FPL
14 then negotiated the target price with the EPC vendor for St. Lucie based on
15 the defined scope, as described in my May 2, 2011 testimony (p. 7). FPL
16 plans to do the same for the Turkey Point EPC contract when the scope is
17 sufficiently defined.

18 **Q. Please respond to the comparison between the EPU project and the last**
19 **round of new nuclear generation construction that occurred in the 1980s.**

20 A. This comparison is not accurate. The scope of new nuclear construction is
21 enormous compared to the EPU project, the Nuclear Regulatory Commission
22 (NRC) regulatory process in the 1980s (during the last wave of construction)
23 was far more uncertain than it is today with numerous requirements changing

1 during and following construction, including the ability to ultimately obtain an
2 operating license post construction was itself uncertain.

3
4 We all agree that the EPU project is complex, primarily because it must be
5 accomplished within operating nuclear facilities. But the NRC regulatory
6 process today is better defined than during past periods of nuclear
7 construction, and despite the complexity, FPL is confident it will be able to
8 successfully complete the project. The EPU project is therefore quite unlike
9 the projects Witness Jacobs attempts to compare it to.

10 **Q. With respect to the recommendations Witness Jacobs makes related to**
11 **FPL's feasibility analysis, he asserts that the St. Lucie and Turkey Point**
12 **uprates should be evaluated separately. Please respond.**

13 **A.** Witness Jacobs ignores the cost advantages of performing four uprates at four
14 units. Performing an EPU on all units within one fleet simultaneously allows
15 the project team to share resources and lessons learned from performing the
16 numerous outages with similar work scopes, thereby increasing efficiency and
17 reducing costs. Additionally, engineering and construction strategy for one
18 unit can be used to support engineering and construction strategy for the other
19 units.

20
21 Additionally, FPL was able to realize cost savings and leverage purchasing
22 power by purchasing multiple pieces of the same equipment. For example,
23 the equipment needed to upgrade the main turbines and generators to

1 accommodate the increased steam flows and electrical output is needed at
2 each unit. Instead of procuring this equipment for one unit, FPL procured the
3 equipment for four units. This was also done for the long lead equipment
4 purchases of the moisture separator reheaters and feedwater heaters.
5

6 CURRENT STATUS OF THE EPU PROJECT

7

8 **Q. Do you have a summary response to Witness Jacobs's testimony related**
9 **to the current status of the EPU project?**

10 A. Yes. My summary response is that Witness Jacobs tells the Commission
11 nothing new. He simply recasts the project information I have testified to
12 over the last two years in a negative light, attempting to turn FPL's efforts to
13 keep the Commission and all parties fully apprised of project status and
14 progress of prudent decision making into claims of imprudence.

15 **Q. Witness Jacobs criticizes FPL for not having "a good handle on the**
16 **ultimate cost of the uprates" (p. 7), ultimately concluding that FPL's May**
17 **2011 non-binding cost estimate is an "uneducated guess" (p. 22-23).**
18 **Please respond.**

19 A. FPL's current non-binding cost estimate is more defined now than it has been
20 in previous years. This definition comes from the completion of the LAR
21 engineering, the completion of about 70% of the design engineering, and the
22 information learned from the early stages of implementation. FPL's non-
23 binding cost estimate is therefore highly informed. It reflects three years of

1 project experience and advancement, as well as the input from an independent
2 project estimating expert, Highbridge Associates (as described in my March 1,
3 2011 testimony addressing the EPU project in 2010, p. 27), and a new target
4 price contract with one of FPL's primary vendors (as described in my May 2,
5 2011 testimony, p. 7). Nonetheless, the non-binding cost estimate still
6 accounts for the fact that more design engineering needs to be accomplished.
7 FPL continues to gain more cost certainty as the design engineering and
8 implementation planning progresses.

9 **Q. Despite his criticism related to the lack of finality of FPL's cost estimate,**
10 **Witness Jacobs also claims FPL's contingency factor is inadequate (p. 7**
11 **and 25). What is your response?**

12 A. Witness Jacobs seems to misunderstand the reference to 7% in FPL's
13 interrogatory response. It is not a contingency value; rather it simply
14 represents the spread between the low end and high end of the non-binding
15 cost forecast estimate range provided in May 2011. The contingency FPL
16 used in its May 2011 non-binding cost estimate range was systematically
17 comprised of 2 – 5% of the well defined to-go engineering, materials, and
18 FPL internal costs, and 18 - 30% of the less defined to-go construction costs,
19 which is appropriate for this stage of the Project.

20 **Q. On pages 15-16, Witness Jacobs explains his Exhibit WRJ-4, purporting**
21 **to show the needed acceleration of the design engineering to complete the**
22 **EPU on time. He again refers to FPL's current status of design**
23 **engineering and WRJ-4 on pages 20-21. Please respond.**

1 A. Witness Jacobs's Exhibit WRJ-4 is a slide from FPL's Executive Steering
2 Committee (ESC) meeting, which shows the total number of Plant Change
3 Modifications (PCMs) to be developed for St. Lucie as of October 2010. He
4 attempts to demonstrate the acceleration of work needed to meet that
5 historical plan, but FPL does not manage the EPU project in that manner. The
6 engineering plan itself has changed substantially since October 2010,
7 reflecting a number of management decisions to ensure the progression of the
8 needed design engineering. For example, FPL has prioritized the
9 development of the PCM packages by outage and scope, and the EPC vendor
10 is proceeding accordingly.

11

12 The quantity of PCMs required for support of the St. Lucie Unit 1 Fall 2011
13 EPU outage is 43. At this time, 37 are at 90% complete or greater. Exhibit
14 TOJ-29 presents the status of design engineering for the Fall 2011 St. Lucie 1
15 EPU outage. As can be seen, FPL is well-positioned to complete all necessary
16 design engineering prior to the outage start date.

17

18 The current plan for the 32 PCMs required for the Summer 2012 St. Lucie
19 Unit 2 EPU outage is to complete the PCMs by approximately April 2012.
20 Thus, not all the St. Lucie PCMs need to be completed by the end of 2011 as
21 indicated by Witness Jacobs. FPL is confident that the required PCMs will be
22 completed to support implementation during the scheduled EPU outages.

1 **Q. Does WRJ-4 indicate that FPL will employ risky methods to complete the**
2 **project by 2013?**

3 A. No. FPL has taken several reasonable steps to ensure the preparation of
4 PCMs to support the EPU work planning and implementation plans. FPL has
5 increased field engineering resources and leveraged the expertise of
6 subcontractors, to ensure the engineering and work planning are completed for
7 each respective outage.

8 **Q. Please explain when FPL might perform work without “complete design**
9 **drawings” (p. 15-16).**

10 A. FPL has well defined processes and procedures that allow planning and
11 implementation to proceed in a controlled manner, based on risk, in cases
12 when engineering is not 100% complete. As demonstrated by Exhibit TOJ-
13 29, this will likely not be necessary for the next EPU outage.

14 **Q. Please respond to Witness Jacobs’s characterization of your deposition**
15 **testimony, wherein you explain that construction may be undertaken “at**
16 **risk”.**

17 A. Witness Jacobs mischaracterizes my deposition testimony. First, at the time I
18 was speaking in generalities – not stating what FPL will or will not be doing.
19 Second, the examples I gave demonstrated that certain components of an
20 implementation effort have *very little to no risk* (such as the pouring of a
21 concrete pad or the installation of an I-beam) – and that they can be
22 undertaken while the remainder of the engineering for the modification is

1 being completed. Such activities are not “very risky from a cost, schedule and
2 NRC point of view” as Witness Jacobs would have one believe.

3 **Q. Are there other mischaracterizations of your testimony, whether in
4 deposition or prefiled?**

5 A. Yes. At pages 23-24 of Witness Jacobs’s testimony, he uses the examples of
6 project complexity I provided in my May 2, 2011 testimony to attempt to
7 explain the type of information that is unknown and discovered during the
8 course of a project (and how it may affect total project costs) and refers to
9 them as “problems” with the project. I would not categorize them as such. As
10 my testimony explains, the potential for these types of challenges are already
11 accounted for in the May 2011 non-binding cost estimate range.

12 **Q. Please respond to Witness Jacobs’s assertion on page 22 that “late”
13 engineering is causing delays.**

14 A. Due to increased scope and discovery, engineering has not progressed as
15 originally planned, mainly because more engineering has been needed, not
16 because engineers have worked too slowly. But with respect to the delays he
17 notes, it should come as no surprise that FPL will adjust its EPU project
18 schedule and outage schedules from time to time as circumstances warrant.
19 Project schedule flexibility is necessary and expected for the prudent
20 management of such a large, complex undertaking as the EPU project.

21 **Q. Please summarize FPL’s efforts over the last two years to complete the
22 necessary design engineering.**

1 A. It has been known and documented by FPL (and FPSC Internal Controls
2 auditors) from the outset of the EPU project that providing the necessary
3 specialized nuclear engineering design staffing resources would be one of the
4 major challenges for the EPU. Recognizing this, FPL has used, in addition to
5 the EPC vendor, several other engineering and specialty contractors to
6 perform specific scopes of work. Westinghouse and Areva are the Nuclear
7 Steam Supply System firms that have been engaged in the LAR licensing
8 effort. Shaw Stone and Webster has expertise in the balance of plant (non-
9 nuclear portion of the power plant), and is engaged in the secondary steam,
10 condensate, and feedwater systems evaluations. Siemens is one of the
11 Original Equipment Manufacturers (OEM) and has been contracted to modify
12 and upgrade turbine and generator equipment needed for the EPU project.
13 Other highly-qualified, major nuclear engineering and construction firms such
14 as Enercon, Sargent & Lundy, and Zachry have also all been contracted to
15 complete modification packages.

16 **Q. Is Witness Jacobs correct that FPL has just “started” to award portions**
17 **of the EPC scope to other vendors (p. 21)?**

18 A. No. FPL awarded design modification work to other vendors going back as
19 far as 2008 and will continue to do so as appropriate.

20 **Q. Witness Jacobs states that the status of project design completion is**
21 **important to the success of a project. What is your response?**

22 A. It goes without saying that design engineering must be completed to
23 successfully complete the project. If that is the point of Witness Jacobs’s

1 testimony, then we are in agreement. However, I disagree that initiating a
2 project with initial scoping information, and proceeding down parallel paths in
3 an effort to bring the project's benefits to customers on the earliest practicable
4 timetable, creates a level of uncertainty that is likely to lead to an unsuccessful
5 project. While there may be uncertainty on total installed cost in the early
6 phases of the project, that does not equate to an unsuccessful project. FPL is
7 currently on track for the successful completion of this project, and based on
8 all the information known today, customers are already benefitting and are
9 expected to benefit substantially in the future from the EPU project.

10
11 **INTERNAL CONTROLS AUDIT TESTIMONY**

12
13 **Q. Are you also responding to Staff's testimony?**

14 A. Yes. I am responding to the recommendation of Mr. Fisher and Mr. Rich in
15 their report that costs associated with three "work stoppages" that occurred in
16 2010 and 2011 be closely examined.

17 **Q. What is your response to Staff's recommendation?**

18 A. FPL expects the Commission and its Staff to closely examine all the costs it
19 incurs related to the EPU project. FPL is therefore providing additional
20 information to assure the Commission that costs were prudently incurred.

21
22 Staff's report at pages 24 through 25 discusses three "work stoppages" that
23 have occurred – two at Turkey Point in 2010 and one at St. Lucie in 2011.

1 Each event is a classic example of “human error” by vendor personnel.
2 Human error does not, however, indicate imprudence on the part of FPL (or
3 the vendor, for that matter). Because FPL was prudent in the hiring of each
4 particular vendor, has reasonable contract terms governing its relationship
5 with its vendors, and has provided reasonable training and/or oversight, any
6 costs resulting from such human error events are reasonable project expenses.
7 This was the case in each of the situations highlighted in Staff’s report.

8
9 FPL hired Siemens and Bechtel in 2008 to perform the work at Turkey Point
10 discussed on page 24, and FPL hired Siemens in 2008 to perform the work at
11 St. Lucie discussed on page 25. These vendors are highly specialized and
12 highly qualified for this type of work. Moreover, with respect to the St. Lucie
13 event, Siemens is the OEM of the turbine generators and therefore owns the
14 intellectual property and has the skill sets to perform this scope of work. For
15 this reason, it was appropriate to hire Siemens. The contracts governing
16 FPL’s relationships with these vendors, and specifically the terms limiting
17 FPL’s liability for costs such as those associated with personnel errors, are
18 industry-standard and reasonable.

19
20 With respect to training and oversight, as described in my March 1, 2011 and
21 May 2, 2011 testimony, FPL followed its procedures and processes to ensure
22 proper oversight of the work. It would not be appropriate – nor cost effective
23 – to provide 100% oversight of all vendor activities (to hire hundreds of

1 employees to stand over the shoulder of every contractor). Rather, FPL (and
2 its industry peers) relies on the vast experience and excellent performance
3 record of its vendors, adheres to its management procedures, and takes
4 corrective action when errors occur.

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

6 A. Yes.

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Florida Power & Light Company
Docket No. 110009-EI
OPC's Sixth Set of Interrogatories
Interrogatory No. 47
Page 1 of 1

Q.

Please refer to page 8, lines 10-15. If FPL had chosen to pursue "each phase of this project in sequence", how "many more years" would be necessary to complete the EPU project?

A.

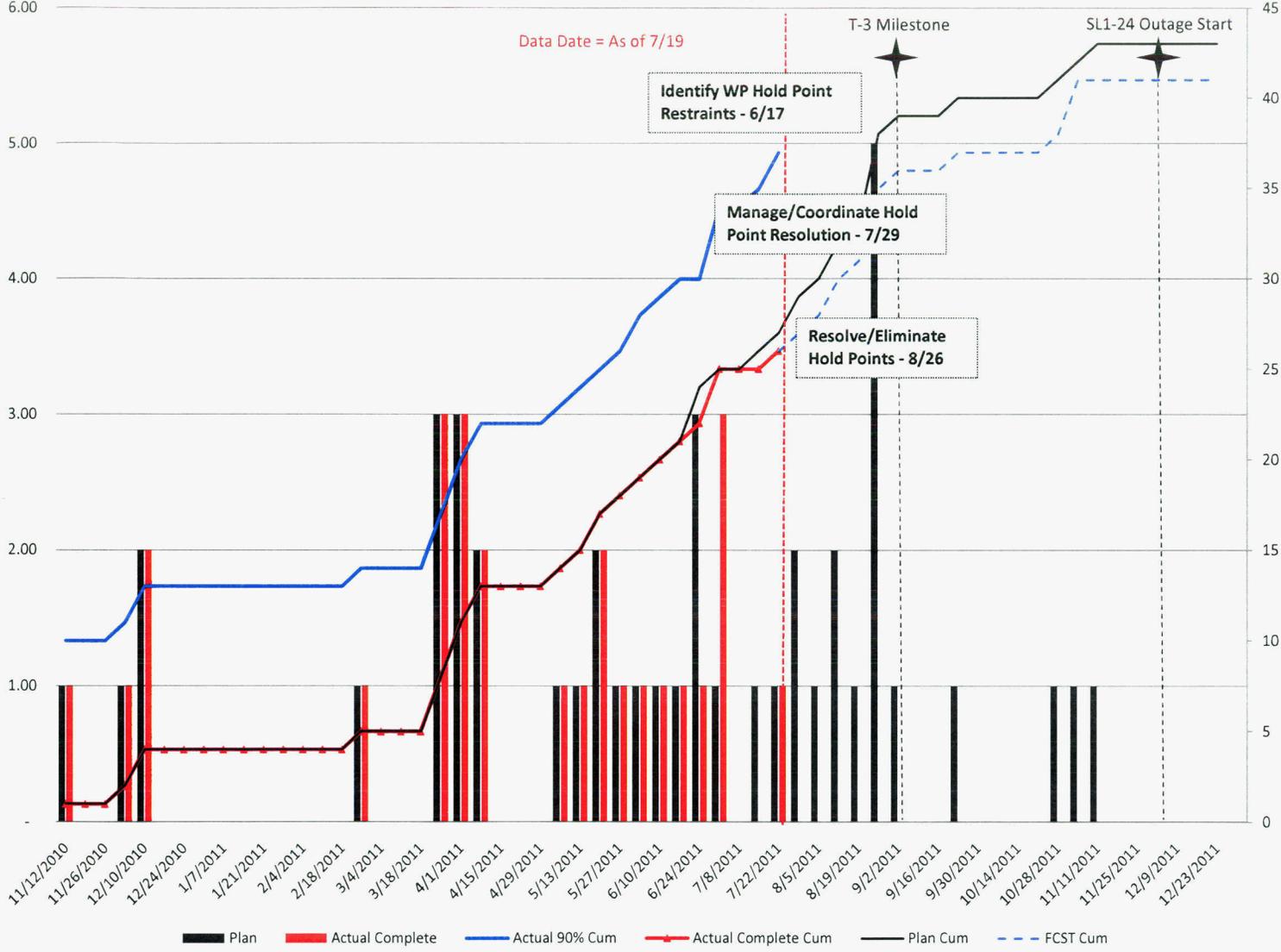
If FPL had chosen to pursue each phase of the EPU project in sequence, the total duration of the EPU project would have been approximately:

Engineering Analysis Phase (LAR Analyses)	3 Years
LAR Approval	1.5 Years
Long Lead Equipment Procurement Phase	2 Years
Engineering Design Modification Phase	2.5 Years
Implementation Phase	<u>2.5 Years</u>
Total EPU duration if performed in series	11.5 Years

(Approximately 6 more years.)

TOJ - 29

SL1-24 Design Engineering EC Package Production



Mod	Plan	FCST
Bechtel Scope		
101	07/30/11	07/30/11
102	04/02/11	04/02/11
103	05/20/11	05/18/11
105	06/06/11	06/28/11
106	06/06/11	06/28/11
107	05/03/11	05/03/11
113	02/23/11	02/23/11
115	11/03/11	11/03/11
116	03/26/11	03/26/11
117	08/23/11	08/23/11
119	06/06/11	06/25/11
121	03/30/11	03/30/11
123	07/20/11	07/21/11
124	07/26/11	07/26/11
125	05/20/11	06/03/11
126	08/22/11	03/25/11
127	05/27/11	05/24/11
128	07/13/11	07/13/11
129	04/06/11	04/06/11
132	03/31/11	03/31/11
133	11/12/10	11/12/10
138	05/13/11	05/13/11
139	03/23/11	03/23/11
143	08/10/11	08/10/11
144	07/21/11	07/21/11
147	08/15/11	08/15/11
150	09/21/11	09/21/11
156	06/03/11	06/09/11
157	06/24/11	07/01/11
158	08/12/11	08/12/11
160	08/22/11	03/25/11
162	05/17/11	06/01/11
165	10/31/11	10/31/11
166	10/28/11	10/28/11
167	08/25/11	08/25/11
169	08/23/11	08/23/11
FPL Scope		
144A	12/01/10	12/01/10
146	12/06/10	12/06/10
148	12/06/10	12/06/10
159	07/20/11	06/14/11
131	08/26/11	08/26/11
E	11/01/11	10/31/11
J	09/02/11	09/01/11

 = FPL Approved EC
 = Late