

**BEFORE THE FLORIDA  
PUBLIC SERVICE COMMISSION**

080203

**DOCKET NO. 08\_\_\_\_-EI  
FLORIDA POWER & LIGHT COMPANY**

**IN RE: FLORIDA POWER & LIGHT COMPANY'S  
PETITION TO DETERMINE NEED FOR  
WEST COUNTY ENERGY CENTER UNIT 3  
ELECTRICAL POWER PLANT**

**DIRECT TESTIMONY & EXHIBITS OF:**

**DR. STEVEN R. SIM**

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ENERGY REGULATORY COMMISSION

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5 **APRIL 8, 2008**

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

8 A. My name is Dr. Steven R. Sim, and my business address is 9250 West Flagler  
9 Street, Miami, Florida 33174.

10 **Q. By whom are you employed and what position do you hold?**

11 A. I am employed by Florida Power & Light Company (FPL) as Senior Manager  
12 of Integrated Resource Planning in the Resource Assessment & Planning  
13 Business Unit.

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

15 A. I supervise and coordinate analyses that are designed to determine the  
16 magnitude and timing of FPL's resource needs and then develop the  
17 integrated resource plan with which FPL will meet those resource needs.

18 **Q. Please describe your education and professional experience.**

19 A. I graduated from the University of Miami (Florida) with a Bachelor's degree  
20 in Mathematics in 1973. I subsequently earned a Master's degree in  
21 Mathematics from the University of Miami (Florida) in 1975 and a Doctorate  
22 in Environmental Science and Engineering from the University of California  
23 at Los Angeles (UCLA) in 1979.

1 While completing my degree program at UCLA, I was also employed full-  
2 time as a Research Associate at the Florida Solar Energy Center during 1977 -  
3 1979. My responsibilities at the Florida Solar Energy Center included an  
4 evaluation of Florida consumers' experiences with solar water heaters and an  
5 analysis of potential renewable resources including photovoltaics, biomass,  
6 wind power, etc., applicable in the southeastern United States.

7  
8 In 1979 I joined FPL. From 1979 until 1991 I worked in various departments  
9 including Marketing, Energy Management Research, and Load Management,  
10 where my responsibilities concerned the development, monitoring, and cost-  
11 effectiveness of demand side management (DSM) programs. In 1991 I joined  
12 my current department, then named the System Planning Department, where I  
13 held different supervisory positions dealing with integrated resource planning.  
14 In late 2007 I assumed my present position.

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

16 **A.** Yes. I am sponsoring Exhibits SRS-1 through SRS-16, which are attached to  
17 my testimony:

18 Exhibit SRS-1 Initial Projection of FPL's 2011 - 2017 Capacity  
19 Needs;

20 Exhibit SRS-2 Evaluation of FPL Self-Build Options: Resource  
21 Plans Analyzed;

22 Exhibit SRS-3 Evaluation of FPL Self-Build Options: Economic  
23 Analysis Results

1	Exhibit SRS-4	FPL's 2007 Request for Proposals Resource Need:
2		2011 & 2012;
3	Exhibit SRS-5	List of Organizations Submitting Proposals;
4	Exhibit SRS-6	Proposal Details;
5	Exhibit SRS-7	FPL's Ten Year Power Plant Site Plan: 2008 - 2017
6	Exhibit SRS-8	Revised Projection of FPL's 2011 - 2017 Capacity
7		Needs;
8	Exhibit SRS-9	Summary of Resource Plans Evaluated;
9	Exhibit SRS-10	Economic Evaluation Results for Resource Plans –
10		Generation System Costs Only;
11	Exhibit SRS-11	Economic Evaluation Results for Resource Plans –
12		Generation System and Transmission-Related Costs
13		Only;
14	Exhibit SRS-12	Calculation of Peak Hour Loss Cost for Resource
15		Plan 2;
16	Exhibit SRS-13	Calculation of Annual Energy Loss Cost for Resource
17		Plan 2;
18	Exhibit SRS-14	Economic Evaluation Results for Resource Plans - All
19		Costs;
20	Exhibit SRS-15	Non-Economic Evaluation Results; and,
21	Exhibit SRS-16	Eligibility Determination Evaluation Results

1       **Q.       What is the scope and purpose of your testimony?**

2       A.       My testimony addresses eleven main points. First, I briefly discuss FPL's  
3       resource planning process. Second, I discuss how FPL determines what its  
4       future resource needs are projected to be. I also discuss FPL's initial  
5       projection of additional resource needs for 2011 – on that was the basis for  
6       FPL's analysis of its self-build options and the Request for Proposals (RFP)  
7       that was issued by FPL. Third, I discuss FPL's demand side management  
8       (DSM) efforts. Fourth, I discuss the selection of the "next planned generating  
9       unit" presented in FPL's 2007 RFP for 2011/2012 Capacity. Fifth, I discuss  
10      FPL's RFP and present the proposals that FPL received in response to the  
11      RFP. Sixth, I discuss FPL's revised projection of additional resource needs for  
12      2011 – on that was based on FPL's revised load forecast and what this revised  
13      resource need projection means in regard to FPL's analysis of its next planned  
14      generating unit and the proposals. Seventh, I discuss the resource plans that  
15      were developed to evaluate the next planned generating unit and the  
16      proposals. Eighth, I present the results of FPL's Economic Evaluation. Ninth,  
17      I present the results of the Non-Economic Evaluation of the capacity options.  
18      Tenth, I present the results of the Eligibility Evaluation to determine the  
19      proposals' compliance with the RFP's Minimum Requirements. Eleventh, I  
20      summarize the results of the Economic, Non-Economic, and Eligibility  
21      Evaluations. The conclusion I draw from this information is that approval for  
22      FPL's West County Energy Center Unit 3 (WCEC 3) in 2011 is the best, most

1 cost-effective option and its approval is in the best interests of FPL's  
2 customers.

3 **Q. Please summarize your testimony.**

4 A. In late 2007, FPL's resource planning work developed a projection of future  
5 resource needs that showed that FPL had a need for additional resources  
6 starting in 2011 and continuing thereafter. In response to this projection of  
7 resource needs beginning in 2011, FPL evaluated self-build options.

8  
9 FPL selected as its next planned generating unit a new 3x1 G CC combined  
10 cycle unit sited at the West County Energy Center (WCEC) to be placed in-  
11 service in June 2011. This new unit, WCEC 3, would be identical in regard to  
12 technology and size to WCEC 1 & 2 now under construction with,  
13 respectively, 2009 and 2010 in-service dates. FPL would seek approval for  
14 the unit under the Power Plant Siting Act and, therefore, the Bid Rule is  
15 triggered. FPL subsequently issued an RFP for new capacity to meet capacity  
16 needs in the 2011/2012 time frame on December 13, 2007. The WCEC 3 unit  
17 in 2011 was designated as FPL's next planned generating unit in the RFP.

18  
19 Three proposals from two organizations were received in response to the RFP.  
20 While FPL determined whether the proposals would comply with the RFP's  
21 Minimum Requirements, FPL proceeded to analyze the proposals in the  
22 Economic and Non-Economic Evaluation work in hopes that the proposals  
23 would be found to have complied with the RFP's Minimum Requirements.

1 Prior to starting the Economic and Non-Economic Evaluations of the next  
2 planned generating unit and the RFP proposals, FPL developed a new load  
3 forecast. This new load forecast in February 2008 resulted in a revised, lower  
4 projection of FPL's resource needs. Using this revised load forecast, plus  
5 FPL's next planned generating unit and the RFP proposals, FPL developed  
6 eight resource plans of capacity options that were then evaluated. These eight  
7 resource plans can be summarized as follows:

- 8 - Resource Plan 1 included WCEC 3 in 2011;
- 9 - Resource Plans 2 through 6 included one or more of the three RFP  
10 proposals;
- 11 - Resource Plan 7 included WCEC 3 but with the in-service date  
12 delayed to 2012; and,
- 13 - Resource Plan 8 included an FPL 3x1G CC unit identical in size  
14 and performance to WCEC 3 at a Greenfield site with an in-service  
15 date delayed one more year to 2013.

16  
17 The result of FPL's Economic Evaluation is that Resource Plan 1, that  
18 included WCEC 3 in 2011, is the clear economic choice by being at least \$606  
19 million less expensive in terms of cumulative present value of revenue  
20 requirements (CPVRR) than any other resource plan that included one or  
21 more of the proposals, and at least \$137 million CPVRR less expensive than  
22 either of the other two resource plans that included an FPL self-build option in  
23 the 2012-2013 time frame. The analyses conducted by an Independent

1            Evaluator, Sedway Consulting, Inc. (Sedway Consulting), also clearly showed  
2            that WCEC 3 in 2011 is the most economical choice. Sedway Consulting's  
3            President, Alan Taylor, has submitted testimony in this proceeding.

4  
5            Evaluations of the risk components of the various capacity options were  
6            carried out. The risk components evaluated in the Non-Economic Evaluation  
7            included three risk areas (i.e., Technical, Environmental, and Project  
8            Execution) not addressed in the Economic Evaluation, plus a separate  
9            Eligibility Evaluation that determined whether proposals met all of the RFP  
10           Minimum Requirements.

11  
12           The Non-Economic Evaluation concluded that all three RFP proposals had an  
13           unacceptable level of risk in one or more of the evaluation categories and that  
14           FPL's next planned generating unit and other self-build options evaluated had  
15           acceptable levels of risk. The Eligibility Evaluation found that all three  
16           proposals failed to meet one or more of the RFP's Minimum Requirements.  
17           Based on the truly significant economic advantage of WCEC 3 in 2011, FPL  
18           determined it was unnecessary to meet with the Bidders in an attempt to  
19           resolve concerns over the problematic risk areas or the failure to meet the  
20           RFP's Minimum Requirements.





- 1           -     Task 1: Determine the magnitude and timing of FPL's new resource
- 2                     needs.
- 3           -     Task 2: Identify the resource options and resource plans that are
- 4                     available to meet the determined magnitude and timing of FPL's
- 5                     resource needs (i.e., identify the available competing options and
- 6                     resource plans).
- 7           -     Task 3: Evaluate the competing resource options and resource plans in
- 8                     regard to system economics and non-economic factors.
- 9           -     Task 4: Select a resource plan from which FPL management will
- 10                    commit, as needed, to the nearer-term options.

11           As previously mentioned, FPL has used this basic resource planning approach

12           for its major resource decisions since the early 1990s.

13           **Q.     Was this resource planning approach also used to select FPL's next**

14           **planned generating unit and to perform the RFP evaluation?**

15           A.     Yes. The IRP process outlined above describes the basic approach that FPL

16                    takes in its major resource planning efforts. Two examples of such efforts are

17                    the analyses performed to identify FPL's best self-build option for 2011/2012

18                    and the evaluations conducted as part of this RFP process.

19

20           In the selection of FPL's best self-build options, the four tasks are conducted

21                    to determine which self-build option should be selected as the next planned

22                    generating unit. Once the timing and magnitude of the 2011 - on resource

23                    needs were determined, FPL's self-build options were evaluated for their

1 ability to meet the need in a cost-effective manner. The self-build option that  
2 emerged from the system economic and non-economic analyses as the best  
3 option was then selected as the next planned generating unit.

4  
5 In regard to the evaluation work for the current RFP, each of the four tasks  
6 outlined above was performed. Once the timing and magnitude of the 2011 –  
7 on resource needs were established, FPL then determined which resource  
8 options, including the next planned generating unit, the RFP proposals, and  
9 other FPL self-build options, were available to meet those needs. FPL then  
10 developed competing resource plans that included the available resource  
11 options with which to address the resource need. System economic and non-  
12 economic analyses were then conducted and a decision was made as to the  
13 best resource plan and associated resource option for FPL’s customers.

14  
15 **II. FPL’s Initial Projection of Resources for 2011 - On**

16  
17 **Q. How does FPL decide whether it needs additional future resources?**

18 **A.** FPL uses two analytical approaches in its reliability analyses to determine the  
19 timing and magnitude of its future resource needs. The first approach is to  
20 make projections of reserve margins both for winter and summer peak hours  
21 for future years. A minimum reserve margin criterion of 20% is used to judge  
22 the projected reserve margins. The 20% reserve margin criterion is based on  
23 the reliability planning standard that FPL currently believes is the appropriate

1 criterion, and that FPL committed to maintain and the Commission approved  
2 in Order No. PSC-99-2507-S-EU.

3  
4 The second approach is a Loss-of-Load-Probability (LOLP) evaluation.  
5 Simply stated, LOLP is an index of how well a generating system may be able  
6 to meet its demand (i.e., a measure of how often load may exceed available  
7 resources). In contrast to the reserve margin approach, the LOLP approach  
8 looks at the daily peak demands for each year, while taking into consideration  
9 the probability of individual generators being out of service due to scheduled  
10 maintenance or forced outages. LOLP is typically expressed in units of  
11 “numbers of times per year” that the system demand could not be served.  
12 FPL’s LOLP criterion is a maximum of 0.1 days per year. This LOLP  
13 criterion is generally accepted throughout the electric utility industry.

14  
15 For a number of years now, FPL’s projected need for additional resources has  
16 been driven by the summer reserve margin criterion. This again was the case  
17 in FPL’s reliability analysis that was the basis for FPL’s projected 2011 - on  
18 resource needs.

19 **Q. In making its projection of FPL’s future resource needs, what were the**  
20 **assumptions used?**

21 A. In the overall RFP process, there were actually two projections of FPL’s  
22 future resource needs. The initial projection was used as the basis for FPL’s  
23 initial analyses of its self-build options that led to the designation of WCEC 3

1 as its next planned generating unit. The initial projection was also used as the  
2 basis for the development of the RFP document issued by FPL in December  
3 2007.

4  
5 All but one of the assumptions used in making the initial projection of  
6 resource needs were identical to the assumptions used in FPL's most recent  
7 need filings for the nuclear uprates and the new Turkey Point 6 & 7 nuclear  
8 units. These identical assumptions include:

- 9 - All cost-effective DSM currently approved by the Commission  
10 through 2014 as FPL's DSM Goals, additional DSM through 2014  
11 identified by FPL after the DSM Goals were established, plus a  
12 projection of continued DSM implementation after 2014 at a rate  
13 commensurate with currently projected annual implementation  
14 rates for the years immediately preceding 2014;
- 15 - 414 MW of new capacity from the uprates at FPL's four existing  
16 nuclear units;
- 17 - No addition of any new FPL generating units after WCEC 1 & 2  
18 are added, respectively, in 2009 and 2010;
- 19 - No additional modifications/enhancements to FPL's existing  
20 generating units;
- 21 - 143 MW of capacity from assumed contract extensions and/or new  
22 contracts with renewable energy (waste-to-energy) facilities

1                   currently under contract but whose current contracts are set to  
2                   expire in the 2010 – 2012 time period; and,  
3                   - 144 MW of additional renewable firm capacity as a “placeholder”  
4                   for renewable capacity that would be provided by new renewable  
5                   purchases and/or FPL’s renewable development efforts.

6  
7                   The only change in the assumptions from those used in the recent nuclear  
8                   need filings was in FPL’s load forecast. This initial projection of resource  
9                   needs was based on the same FPL load forecast used in the two nuclear need  
10                  filings. However, to this forecast was added the load requirement from serving  
11                  Lee County Electric Cooperative (Lee County) starting in 2010. The Lee  
12                  County requirement is approximately 200 MW for the 2010 through 2013  
13                  time period, then this requirement ramps up to a total of approximately 900  
14                  MW starting in 2014.

15  
16                  FPL witness Dr. Rosemary Morley discusses the nature and magnitude of the  
17                  Lee County load in her testimony and how it was integrated into FPL’s load  
18                  forecast that was used previously in the nuclear need filings.

19                  **Q.    What was the magnitude and timing of the initial projection of resource**  
20                  **needs?**

21                  A.    The initial resource need projection showed the additional incremental MW  
22                  needed by the summer of 2011 was 214 MW if the resource is to be provided  
23                  by a Supply side option (i.e., power plant construction or purchase) or, due to

1 the 20% reserve margin criterion, 178 MW ( $214 \text{ MW}/1.20 = 178 \text{ MW}$ ) if  
2 provided by a DSM-based reduction to the forecasted peak load. Similar  
3 incremental need values for the summers of 2012 through 2017, respectively,  
4 are another 212 MW (Supply) or 177 MW (DSM) for 2012; 317 MW  
5 (Supply) or 264 MW (DSM) for 2013; 1,281 MW (Supply) or 1,068 MW  
6 (DSM) for 2014; 672 MW (Supply) or 560 MW (DSM) for 2015; 1,965 MW  
7 (Supply) or 1,638 MW (DSM); and 692 MW (Supply) or 577 MW (DSM).

8  
9 The significant increases in the 2014 and 2016 needs are primarily due to the  
10 two factors. First, FPL will begin serving the entire Lee County load  
11 beginning in 2014 as previously discussed. Second, in 2016 two significant  
12 power purchases are projected to no longer be providing capacity and energy  
13 to FPL. One of these is a 931 MW power purchase agreement with the  
14 Southern Company that expires at the end of 2015. The other is a 381 MW  
15 power purchase from the St. Johns River Power Park (SJRPP). Due to Internal  
16 Revenue Service regulations, FPL will no longer be able to receive capacity  
17 and energy from the SJRPP agreement once a certain amount of energy has  
18 been received. FPL currently estimates that this point will be reached in early  
19 2016.

20  
21 These incremental annual resource need values add to a cumulative need  
22 value for 2011 – 2017 of 5,353 MW if the resource need is to be met by  
23 supply options or 4,461 MW if the resource need is to be met by DSM. This

1 initial projection of resource needs to meet the summer reserve margin  
2 criterion for 2011 – 2017, if the resource needs are to be met by Supply  
3 options, are shown in Exhibit SRS - 1. This document also shows that, if these  
4 levels of Supply additions are added to meet the summer needs, these  
5 additions will also satisfy the lower resource needs to meet the winter reserve  
6 margin criterion.

### 8 III. Demand Side Management

9  
10 **Q. When did FPL begin its DSM efforts, and how have they progressed over**  
11 **time?**

12 **A.** FPL has a long history of identifying, developing and implementing DSM  
13 resources to avoid or defer the construction of new power plants. FPL first  
14 began offering DSM programs in the late 1970s with the introduction of its  
15 Watt-Wise Home Program. An increasing number of additional DSM  
16 programs were offered throughout the 1980s and 1990s. These programs have  
17 included both conservation and load management programs, targeting the  
18 residential, commercial, and industrial markets.

19  
20 FPL's portfolio of DSM programs has evolved over time. FPL continually  
21 looks for new DSM opportunities in its research and development activities.  
22 When a new DSM opportunity is identified and projected to be cost-effective,  
23 FPL attempts either to implement a new DSM program or to incorporate this



1 DSM opportunity into one or more of its existing DSM programs. In addition,  
2 FPL has modified DSM programs over time in order to maintain the cost-  
3 effectiveness of the programs. This allows FPL to continue to offer the most  
4 cost-effective programs available. On occasion, FPL has also terminated DSM  
5 programs that were no longer cost-effective and could not be modified to  
6 become cost-effective.

7 **Q. How effective has FPL been in implementing DSM, and what are the**  
8 **resulting impacts of these efforts?**

9 A. FPL has been very successful in cost-effectively avoiding or deferring new  
10 power plant construction using DSM. Since the inception of its programs  
11 through the end of 2007, FPL has achieved 3,961 MW (at the generator) of  
12 summer peak demand reduction, 2,913 MW (at the generator) of winter peak  
13 demand reduction, and 42,301 GWh (at the generator) of energy savings. FPL  
14 has also completed more than 2,537,600 energy audits of customers' homes  
15 and facilities.

16  
17 This amount of summer peak demand reduction has eliminated the need for  
18 the equivalent of 12 power plants of 400 MW capacity each (after accounting  
19 for reserve margin requirements). Most importantly, FPL has achieved this  
20 level of demand reduction without penalizing customers who are non-  
21 participants in its DSM programs. FPL has been able to avoid penalizing non-  
22 participating customers by offering only DSM programs that are designed to

1 reduce electric rates for all customers, DSM participants and non-participants  
2 alike.

3 **Q. How do FPL's DSM efforts compare to those of other utilities?**

4 A. The U.S. Department of Energy (DOE) reports annually on the effectiveness  
5 of utility DSM efforts through its Energy Information Administration. DOE  
6 separately measures both conservation and load management. Based on the  
7 most current comparative data available, which is for the year 2006, FPL is  
8 ranked number one nationally for cumulative conservation (i.e., energy  
9 efficiency) achievement and number three in load management.

10 **Q. Has FPL continued to refine and improve its DSM programs, including  
11 looking for additional cost-effective DSM opportunities?**

12 A. Yes. FPL continually seeks ways to refine, improve, and expand its portfolio  
13 of cost-effective DSM programs through its on-going program monitoring  
14 work as well as its research and development activities.

15 **Q. What is FPL's current DSM projection?**

16 A. Column (5) in Exhibit SRS-1 shows FPL's current projection of DSM  
17 (summer MW) through August 2017. This amount of DSM reflects FPL's  
18 DSM Goals that were approved by the Commission in Order No. PSC-04-  
19 0763-PAA-EG, additional cost-effective DSM that was identified by FPL  
20 subsequent to the establishment of FPL's DSM Goals, and a projected  
21 continuation of DSM implementation for 2015 – 2017 at implementation rates  
22 commensurate with those for the years immediately preceding 2014.

1       **Q.     Do FPL’s projections of resource needs take into account all DSM found**  
2       **to be cost-effective and approved by the Commission?**

3       A.     Yes. FPL’s projection of 2011 - 2017 resource needs presented in Exhibit  
4       SRS-1 already account for all of the reasonably achievable, cost-effective  
5       DSM identified by FPL and approved by the Commission. And, as mentioned  
6       above, the amount of DSM included in FPL’s projection of resource needs  
7       also includes additional DSM found to be cost-effective after FPL’s DSM  
8       Goals were established, plus an assumed continuation of DSM  
9       implementation for 2015-2017 at annual implementation rates commensurate  
10      with planned DSM implementation rates in the years immediately preceding  
11      2014.

12  
13

**IV.     The Selection of FPL’s Next Planned Generating Unit**

14  
15

**Q.     What power plant self-build options and sites were considered before**  
16      **designating a third combined cycle unit at the West County Energy**  
17      **Center in 2011 as FPL’s “next planned generating unit” as prescribed in**  
18      **the Bid Rule?**

19      A.     At the time FPL was evaluating its self-build options, it was using the initial  
20      projection of capacity needs that is presented in Exhibit SRS-1 that shows  
21      FPL’s capacity needs beginning in 2011 and continuing in 2012 and later  
22      years. Therefore, FPL sought self-build options that could be brought in-  
23      service by June 2011 through June 2012.

1 In regard to the technology, the self-build capacity options that were evaluated  
2 were gas-fired combined cycle (CC) options. There are two reasons for this.  
3 First, to date, none of the new advanced technology coal generating units for  
4 which recent approval has been sought by any electric utility in Florida have  
5 received both need and permitting approval. In addition, even if need and  
6 permitting approval were possible, the longer construction time required for  
7 new coal-fired units makes it infeasible to add such units by 2011 or 2012.  
8 The same is true for new nuclear units. Therefore, only gas-fired generating  
9 unit additions are feasible self-build options in this time frame.

10  
11 Second, in regard to the two types of gas-fired generating options, CC and  
12 combustion turbine (CT) units, FPL's analyses over the years have  
13 consistently shown that, due to the substantial load growth on FPL's system,  
14 CC units are more economical generating options than are CT units due to the  
15 much greater fuel efficiency of CC units, which results in much higher  
16 capacity factors and system fuel savings of CC units. These considerations led  
17 to an evaluation of 3x1 G CC units; i.e., the same technology chosen for  
18 WCEC 1 & 2, and 2x1 G CC units. These two types of CC units were  
19 evaluated for two different sites and in two in-service years.

20  
21 In terms of specific sites for FPL's next planned generating unit, the most  
22 viable sites for a 2011 or 2012 unit were the WCEC site and FPL's existing  
23 Martin site. In terms of an in-service date, only a 3x1 G CC unit at WCEC

1 was possible by June 2011. This WCEC 3x1 G CC unit was also possible for a  
2 June 2012 in-service date as was a 3x1 G CC at Martin and a 2x1 G CC at  
3 WCEC. The 2011 in-service date was deemed possible only for a 3x1 G CC at  
4 WCEC because both of two required factors were in place. First, FPL already  
5 has engineering and construction plans for a 3x1 G unit at the site. Two,  
6 construction crews will already be at the site working on WCEC 1 & 2. If  
7 either another site or technology were to be used, the in-service date would be  
8 delayed beyond June 2011 (i.e., to June 2012 for reserve margin planning  
9 purposes).

10 **Q. How did FPL combine these technologies, sites, and in-service dates in its**  
11 **analyses of self-build options?**

12 A. Using the initial projection of capacity need that was previously discussed,  
13 FPL created and evaluated four different resource plans in order to determine  
14 what the most economical self-build CC unit was in regard to site, technology,  
15 and in-service date. The four resource plans, labeled Resource Plans A  
16 through D, were developed using the assumptions previously discussed in  
17 regard to the initial projection of resource needs. These resource plans had  
18 significant differences in the years 2011 through 2014, but differed little in the  
19 remaining years.

20  
21 Resource Plan A included a 3x1 G CC unit at WCEC in 2011 (WCEC 3),  
22 followed by a 2014 3x1 G CC unit at Martin. This resource plan also included  
23 a 3x1 G CC in 2015, a 3x1 G CC in 2016, a 2x1 G CC in 2017, Turkey Point

1 nuclear units in 2018 and 2020, and 36 2x1 F CC filler units in the 2021 –  
2 2040 time frame.

3  
4 All four resource plans were identical in regard to the 2018 – on capacity  
5 additions. Resource Plans B through D were also identical to each other for  
6 2011 by including a 214 MW one-year power purchase agreement (PPA) in  
7 that year.

8  
9 Resource Plan B then included a 3x1 G CC unit at Martin in 2012, a 2014 3x1  
10 G CC at WCEC, then the same resource additions for 2015-2017 as Resource  
11 Plan A.

12  
13 Resource Plan C included a 2x1 G CC unit at WCEC in 2012, a 3x1 G CC  
14 unit at Martin in 2014, and one 3x1 G CC unit in each of the years 2015,  
15 2016, and 2017.

16  
17 Resource Plan D included a 3x1 G CC unit at WCEC in 2012, and is identical  
18 to Resource Plan A for the years 2014 through 2017.

19  
20 Exhibit SRS-2 provides an overview of these resource plans. Resource Plans  
21 A, B, and C address the earliest in-service dates possible for the different  
22 technologies and sites. Resource Plan D addresses the evaluation of a 3x1 G  
23 CC unit at WCEC, but with the in-service date delayed one year to 2012.

1       **Q.     What costs were included in the economic evaluation?**

2       A.     For each resource plan, FPL evaluated the generator capital, capital  
3             replacement, and operation and maintenance (O&M) costs, transmission  
4             interconnection and integration capital costs, system emission costs, startup  
5             costs, firm gas transportation costs, project fuel costs, and system fuel costs  
6             (i.e., which are referred to as the “Generator System” costs) in a multi-year  
7             resource plan approach using the P-MArea production costing model and  
8             FPL’s Fixed Cost Spreadsheet Model; the same models that were used in  
9             FPL’s last several need filings. Through the use of P-MArea, the impacts that  
10            each CC unit being evaluated would have on the dispatch of FPL’s existing  
11            generating units located in Southeastern Florida were also captured. Because  
12            all of the self-build options were assumed to be constructed with a capital  
13            structure of 55.8% equity / 44.2% debt, there was no impact from any of the  
14            self-build options on FPL’s target adjusted capital structure of 55.8% equity /  
15            44.2% debt. Therefore, no impacts on FPL’s cost of capital were included in  
16            the evaluation.

17       **Q.     What were the results of the analyses to determine the best self-build  
18             option for FPL?**

19       A.     The results of these comparative analyses are presented in Exhibit SRS-3.  
20             From an examination of this document, two primary results emerge.

21  
22             First, the lower costs of Resource Plan A compared to Resource Plans B and  
23             C, in which other technologies and sites were evaluated, show that placing a

1 third 3x1 G CC at the WCEC site in 2011 is the economic choice by a  
2 significant margin of at least \$157 million CPVRR. Second, by comparing  
3 Resource Plan A to Resource Plan D, in which the only change is a one-year  
4 delay in bringing WCEC 3 in-service, it is evident that an economic advantage  
5 of \$148 million CPVRR is gained by placing WCEC 3 in-service in June 2011  
6 compared to delaying the in-service date to June 2012.

7  
8 Based on these results, FPL designated WCEC 3 with an in-service date of  
9 June 2011 as its “next planned generating unit” for purposes of the RFP as  
10 required by the Bid Rule.

11 **Q. Was the analytical approach used to determine FPL’s best self-build**  
12 **option similar to the economic evaluation process FPL later utilized to**  
13 **examine proposals received in response to its RFP?**

14 A. Yes. The basic analytical approach used to determine FPL’s next planned  
15 generating unit is very similar to the Economic Evaluation process described  
16 in the capacity RFP and used to evaluate the proposals received in response to  
17 the RFP and FPL’s next planned generating unit. Both analytical approaches  
18 capture all of the cost differences between the competing options/resource  
19 plans. However, in the analyses of the proposals received in response to the  
20 RFP, the fact that the proposals will have an impact on FPL’s cost of capital  
21 was also captured in the analyses of the proposals.





1 more detailed information regarding the proposals, including capacity,  
2 technology, in-service dates, and term-of-service, is presented in Exhibit SRS-  
3 6.

4 **Q. Did all of the proposals clearly provide the information FPL requested**  
5 **for its evaluations and meet the RFP Minimum Requirements, so that**  
6 **FPL could immediately begin its evaluations?**

7 A. No. FPL and the Independent Evaluator, Sedway Consulting, reviewed all  
8 proposals received on the Proposal Due Date of February 13, 2008. Questions  
9 regarding whether the RFP's Minimum Requirements had been met by the  
10 proposals were identified during this initial review. In addition, certain  
11 information requested on the RFP forms for all three proposals was either  
12 omitted or needed clarification. Issues regarding omitted or confusing  
13 information were brought to the Bidders' attention and most were resolved  
14 relatively quickly.

15  
16 Issues regarding whether proposals complied with the RFP's Minimum  
17 Requirements were not resolved as quickly. In order to avoid delays in the  
18 evaluation process, FPL proceeded with the Economic and Non-Economic  
19 Evaluations in hopes that the proposals would eventually be found to be in  
20 compliance with the RFP's Minimum Requirements.

1                   **VI. FPL's Revised Projection of Resource Needs for 2011 - On**

2

3           **Q. You mentioned earlier that there were two projections of FPL's future**  
4           **resource needs for 2011 – on. Why was a second projection made and**  
5           **when in the RFP process did this occur?**

6           A. FPL revised its load forecast in early February 2008. Because this load  
7           forecast was significantly lower in the near-term than the load forecast  
8           previously discussed, a new projection of future resource needs was made.  
9           FPL witness Morley's testimony discusses the revised load forecast and how  
10          it was developed. In addition, a further discussion of FPL's revised load  
11          forecast is presented in FPL's Ten Year Power Plant Site Plan: 2008-2017  
12          that is as attached as Exhibit SRS-7.

13          **Q. In addition to a new lower load forecast in the near-term, were there any**  
14          **other meaningful changes to the assumptions used in the initial resource**  
15          **need projection that has been previously discussed?**

16          A. Yes. One other meaningful change to the assumptions was made. This change  
17          is a slight lowering of the previously assumed 144 MW of new renewable  
18          capacity to 126 MW.

19          **Q. How did these assumption changes alter the projection of FPL's future**  
20          **resource needs?**

21          A. Primarily as a result of the revised, lower in the near-term load forecast, FPL's  
22          projection of its 2011 – on capacity needs was also lowered. The new  
23          incremental resource need projection for 2011-2017 is as follows: no resource

1 need for 2011 or 2012; a need of 301 MW (Supply) or 251 MW (DSM) for  
2 2013; an additional need of 1,232 MW (Supply) or 1,027 MW (DSM) for  
3 2014; an additional need of 632 MW (Supply) or 526 MW (DSM) for 2015;  
4 an additional need of 1,996 MW (Supply) or 1,663 MW (DSM) for 2016; and  
5 an additional need of 683 MW (Supply) or 569 MW (DSM) for 2017. These  
6 revised incremental annual resource need values add to a cumulative need  
7 value for 2011-2017 of 4,844 MW if the resource need is to be met by supply  
8 options, or 4,037 MW if the resource need is to be met by DSM. This revised  
9 projection of resource needs was utilized in the evaluation of FPL's next  
10 planned generating unit and the proposals received in response to FPL's RFP.  
11 This revised projection of FPL's capacity needs is presented in Exhibit SRS-8.

12 **Q. What impact does the fact that, if viewed only from a reliability**  
13 **perspective, FPL no longer projects a resource need for 2011 have on this**  
14 **need filing?**

15 A. FPL's analyses and its request for approval of a need determination to add  
16 WCEC 3 in 2011 are not based on meeting a capacity need in that year as is  
17 the "usual" case in a need filing. Instead, other considerations such as  
18 economic savings for FPL's customers, reductions in system fuel use and  
19 emissions, plus strategic concerns are driving FPL's analyses and request.

20  
21 **Q. What is the relevant issue in FPL's analysis?**

22 A. The relevant issue is whether it is beneficial to FPL's customers to secure  
23 additional generating capacity – either from FPL's next planned generating

1 unit or from one or more of the RFP proposals - starting in 2011 or 2012, prior  
2 to when additional resources are needed strictly based on the 20% reserve  
3 margin, reliability-only perspective. This issue is discussed in FPL's filing in  
4 regard to several additional perspectives including: system economics, system  
5 fuel use, system emissions, and whether the addition of "early" capacity is  
6 strategically advantageous in regard to creating the opportunity to potentially  
7 convert one or more of FPL's existing generating units. The remainder of my  
8 testimony addresses in detail the system economic perspective listed above  
9 (and also discusses the Non-Economic and Eligibility Evaluations) for FPL's  
10 next planned generating unit and the RFP proposals. FPL witness Rene Silva's  
11 testimony also refers to the system economics perspective, plus his testimony  
12 addresses the other perspectives listed above: system fuel use, system  
13 emissions, and potential strategic advantages.

14  
15 **VII. The Resource Plans Utilized in FPL's Evaluation of the**  
16 **Next Planned Generating Unit and the RFP Proposals**

17  
18 **Q. How many resource plans did FPL develop for its analyses of its next**  
19 **planned generating unit and the RFP proposals?**

20 **A.** FPL developed 8 resource plans for use in its analyses of the RFP proposals  
21 and its next planned generating unit, WCEC 3. These resource plans are  
22 presented in Exhibit SRS-9.

23 **Q. How were these resource plans developed?**

1       A.     The resource plans were developed utilizing the same assumptions that were  
2             used in the revised projection of resource needs as previously discussed. Each  
3             resource plan is designed to meet FPL's 20% reserve margin criterion in each  
4             year of the analysis period, 2008 through 2038. Each resource plan included  
5             the new nuclear units, Turkey Point 6 & 7, in 2018 and 2020, respectively. For  
6             the time period of 2014 through 2017, new unsited 3x1 G CC units were  
7             added as needed. For the time period of 2021 through 2038, new unsited 2x1  
8             F CC "filler" units were added as needed. In addition, several resource plans  
9             included a one-year purchase of 345 MW in 2019 from an unknown source to  
10            meet a short-term resource need.

11       **Q.     The Economic Evaluation utilized these resource plans containing FPL's**  
12            **next planned generating unit or the RFP proposals. Why is it**  
13            **appropriate to perform the Economic Evaluation based on multi-year**  
14            **resource plans?**

15       A.     It is not only appropriate to do this, but also necessary if one is to capture and  
16             fairly compare all of the impacts that competing generation options with  
17             different capacity amounts, terms-of-service, heat rates, types of fuel, and  
18             costs will have on FPL's system.

19  
20             For example, assume we are comparing Option A and Option B that both offer  
21             the same amount of capacity. Option A has a heat rate of 7,000 Btu/kWh and  
22             is offered to FPL for 15 years. Option B has an 8,000 Btu/kWh heat rate and is  
23             offered for 20 years. Evaluating these options from a resource plan

1 perspective allows one to capture the economic impacts of both the heat rate  
2 and term-of-service differences. The lower heat rate of Option A will allow it  
3 to be dispatched more than Option B, thus reducing the run time of FPL's  
4 existing units more than will Option B. This results in greater production cost  
5 savings for Option A. However, Option B's longer term-of-service means  
6 that it defers the need for future generation for a longer period. Therefore,  
7 Option B will provide capacity avoidance benefits for more years.

8  
9 Only by taking a multi-year resource plan approach to the evaluation can  
10 factors such as these be captured and effectively compared. In the RFP  
11 Economic Evaluation, the resource plans created addressed the FPL system  
12 through the year 2038.

13 **Q. Why are "filler" units needed in a resource plan evaluation?**

14 A. The "filler" units are needed in a multi-year resource plan analysis as a proxy  
15 resource added to meet FPL's capacity needs for 2021 – on (i.e., after the  
16 Turkey Point 6 & 7 new nuclear units are added in 2018 and 2020,  
17 respectively. In this way the resource plans being compared all meet FPL's  
18 reliability criteria for each year in the analysis period, ensuring both that the  
19 resource plans are comparable and that the results of the evaluation are  
20 meaningful.

21 **Q. Please discuss the individual resource plans.**

22 A. As presented in Exhibit SRS-9, Resource Plan 1 consisted of WCEC 3 in  
23 2011, a 3x1 G CC unit in 2014, two 3x1 G CC units in 2016, Turkey Point 6

1 & 7 in 2018 and 2020, respectively, the previously mentioned 345 MW one-  
2 year power purchase in 2019, and 35 filler units in the 2021 through 2038  
3 time period.

4  
5 Resource Plans 2 through 6 are similar to Resource Plan 1, but substitute first  
6 the individual proposals (P1, P2, and P3) for the WCEC 3 unit in their  
7 proposed in-service year, then substitute combinations of the proposals (P1 &  
8 P2, then P1 & P3) in their proposed in-service years.

9  
10 Resource Plans 7 and 8 were added to the analysis to gauge the economic  
11 impact of building WCEC 3 in 2012, or of building a 3x1 G CC unit at a  
12 Greenfield site in 2013, instead of proceeding with the next planned  
13 generating unit or RFP proposals in their respective in-service years.

14  
15 In Resource Plan 7, the capital costs for a third 3x1 G CC unit at the WCEC  
16 site, but with a one-year delay to 2012, are significantly greater, largely as a  
17 result of having approximately a one-year interruption in engineering and  
18 construction work between the 2009 and 2010 WCEC 1 & 2 units and a third  
19 CC unit in 2012. Resource Plan 8 reflects FPL's view that it is unlikely that a  
20 third CC unit would be built at the WCEC site if that unit were not to come in-  
21 service by 2012. FPL witness John Gnecco's testimony addresses both the  
22 greater cost for a third CC unit at the WCEC site if the unit is delayed until



1 2012, and the reasons why it is unlikely that the WCEC site would be used for  
2 a third CC unit if the in-service date were to be delayed until 2013.

3  
4 **VIII. The Results of the RFP Economic Evaluation**

5  
6 **Q. Did FPL follow the RFP evaluation methodology described in the RFP?**

7 A. Yes. The eight-step evaluation methodology described in Appendix D of the  
8 RFP was utilized in FPL's RFP evaluation work. In practice, a number of  
9 these steps are conducted simultaneously. In addition, and as discussed in  
10 Appendix D of the RFP, a couple of the steps are considered to be optional  
11 and FPL chose not to utilize these optional steps in this evaluation.

12  
13 One of these optional steps is "Step 2: Economic Evaluation of Individual  
14 Proposals". The RFP's Appendix D states that "If there are a relatively small  
15 number of eligible proposals, FPL may choose to forego this step of  
16 evaluating individual proposals and proceed to the creation and evaluation of  
17 portfolios". Because three proposals were submitted in response to the RFP,  
18 FPL chose to forego this step and used the proposals directly to create the  
19 resource plans (or portfolios) previously discussed.

20  
21 Another optional step is "Step 7: Best and Final Offer Evaluation". Based on  
22 the significant differences in the Economic Evaluation results that will be  
23 discussed in the remainder of my testimony, FPL chose to also forego this step

1 and, as described in the RFP's Appendix D, to "base its decision on the  
2 evaluation (Economic and Non-Economic) performed on the original  
3 proposals."

4 **Q. How did FPL address the first step, "Initial Screening for Eligibility", in**  
5 **the evaluation?**

6 A. The issue of eligibility was an on-going one for the three proposals. Rather  
7 than wait to start the Economic and Non-Economic Evaluations until this  
8 issue had been resolved, FPL chose to begin its evaluation work with the hope  
9 that all proposals would eventually be found to be eligible. I'll return to the  
10 eligibility issue later in my testimony.

11 **Q. What fuel cost and environmental compliance cost forecasts were used in**  
12 **the economic evaluation?**

13 A. In the Economic Evaluation, FPL used the same fuel cost and environmental  
14 compliance cost forecasts that were made available to prospective Bidders as  
15 part of the information presented by FPL about the RFP evaluation process.  
16 These forecasts were presented as addenda to the RFP that were posted on  
17 FPL's RFP website shortly after the RFP was issued on December 13, 2007.

18  
19 These forecasts are identical to specific forecasts used in FPL's two recent  
20 nuclear need filings to the FPSC (Docket Nos. 070602-EI and 070650-EI).  
21 These dockets were underway at the time the RFP was prepared and issued  
22 and these forecasts represented the most current forecast information  
23 available. The fuel cost and environmental compliance cost forecasts used in

1 the RFP Economic Evaluation were labeled in the nuclear filings,  
2 respectively, as the Medium Gas Cost forecast and the Env II forecast. FPL  
3 witness Heather Stubblefield discusses the fuel cost forecast in her testimony  
4 and FPL witness Kennard Kosky discusses the environmental compliance cost  
5 forecast in his testimony.

6 **Q. What were the results of the initial economic analysis of the resource  
7 plans?**

8 A. The results of the initial economic analysis of the resource plans, referred to as  
9 Step 3 in the RFP's Appendix D, are presented in Exhibit SRS-10. This step  
10 presents the Generation System costs for each of the resource plans. The  
11 Generation System costs include: generation capital, fixed O&M, capital  
12 replacement, variable O&M, project fuel, FPL system fuel, firm gas  
13 transportation, transmission interconnection capital, startup costs, system  
14 emissions, and proposal payments.

15  
16 At this stage of the Economic Evaluation, Resource Plan 1, that features  
17 WCEC 3 in 2011, is the most economical plan with an economic advantage of  
18 at least \$505 million CPVRR compared to Resource Plans 2 through 6 that  
19 include one or more proposals, and at least \$131 million CPVRR compared to  
20 Resource Plans 7 and 8 that include other FPL self-build options.

21 **Q. In Steps 4 and 5 of the economic analysis, additional system costs related  
22 to the transmission system, the fuel system, and costs of capital are  
23 developed and added to the results of the initial economic analysis of the**

1 resource plans. How did the economic results change when these  
2 additional system costs are included?

3 A. Exhibit SRS-11 presents the results when the transmission system-related  
4 costs are included in the analysis. These additional costs address transmission  
5 integration capital costs, peak hour capacity losses, and annual energy losses.

6  
7 In regard to the transmission integration costs, the transmission integration  
8 costs for WCEC 3 in 2011 were already included in the capital costs for that  
9 unit and, therefore, had already been captured for Resource Plan 1. Likewise,  
10 the transmission integration costs were also included in the capital costs for  
11 the two other FPL self-build options evaluated, WCEC 3 in 2012 that is  
12 included in Resource Plan 7 and a 3x1 G CC at a Greenfield site that is  
13 included in Resource Plan 8. Consequently, there were zero additional  
14 transmission integration costs for Resource Plans 1, 7, and 8.

15  
16 The transmission integration costs for the remaining five resource plans were  
17 projected to be negligible (i.e., approximately \$0.4 million or less). Therefore,  
18 for purposes of the Economic Evaluation, the transmission integration costs  
19 for Resource Plans 2 through 6 are assumed to be zero as well.

20  
21 However, significant differences are projected in the transmission system  
22 losses for the resource plans. In calculating the cost of these losses, the costs  
23 are presented in terms of relative costs to those of Resource Plan 1.

1 As shown in Exhibit SRS-11, the economic advantage of Resource Plan 1,  
2 that features WCEC 3 in 2011, is increased to at least \$607 million CPVRR  
3 compared to Resource Plans 2 through 6 that include one or more of the  
4 proposals, or to at least \$137 million CPVRR compared to Resource Plans 7  
5 and 8 that include other FPL self-build options, by the inclusion of these  
6 transmission system-related costs.

7 **Q. Do the projected transmission costs for integration and losses presented**  
8 **in Exhibit SRS-11 capture all of these potential transmission-related costs**  
9 **for the eight resource plans?**

10 A. Not necessarily. Although FPL believes that the projected costs for  
11 transmission integration and losses shown in Exhibit SRS-11 fully capture all  
12 of these transmission-related costs for Resource Plans 1, 7, and 8, it is possible  
13 that there are additional transmission-related costs for Resource Plans 2, 3, 4,  
14 5, and 6.

15  
16 These five resource plans all include one or more of the RFP proposals. Each  
17 of these proposals is based on generating facilities for which the transmission  
18 screening analyses indicated a potential for transmission overloads on non-  
19 FPL transmission systems that would need to be addressed if one or more of  
20 the RFP proposals were ultimately selected.

21  
22 This finding increases the potential for additional costs that could be incurred  
23 in order for these proposals to supply capacity and energy to FPL.

1 Furthermore, if additional transmission facilities are needed to address the  
2 potential overloads, it is unclear if these needed facilities could be built in  
3 time to allow the proposals to meet their proposed beginning delivery dates to  
4 FPL.

5  
6 However, because it would take an extended amount of time to first request  
7 transmission studies for these non-FPL transmission systems, and to then  
8 receive the results of those studies, it was not possible to obtain this  
9 information in time to complete the Economic Evaluation. However, the  
10 relative economics of these five resource plans compared to Resource Plan 1  
11 as shown in Exhibit SRS-11 resulted in FPL determining that it was not  
12 critical to attempt to obtain this information.

13  
14 If it were possible to obtain that information in time, and if the information  
15 indicated that additional costs would be incurred, this result would only have  
16 widened the already significant economic difference between these five  
17 resource plans and Resource Plan 1. (Likewise, if it was possible to obtain that  
18 information in time, and if the information indicated that delays in in-service  
19 dates were likely, this result would have further disadvantaged the five  
20 resource plans containing the relevant proposal(s).) Therefore, although FPL's  
21 Economic and Non-Economic Evaluations of these resource plans recognized  
22 that these potential costs and delivery date complications may exist, these are  
23 not included in the evaluations.

1 **Q. How were the costs of the transmission losses calculated?**

2 A. These calculations were performed consistent with the methodology described  
3 in Appendix D of the RFP. In order to demonstrate how the costs associated  
4 with the peak hour capacity losses and the annual energy losses are developed,  
5 Exhibits SRS-12 and SRS-13 present those calculations for Resource Plan 2.

6 **Q. Did the economic results change when the other additional system costs,  
7 the gas system costs and the cost of capital impacts, were included?**

8 A. Yes. FPL's analysis showed there were no upstream gas costs associated with  
9 the resource plans that had not already been addressed in the initial economic  
10 analyses of the resource plans, but there were cost of capital impacts  
11 associated with the resource plans that included new purchases of firm  
12 capacity; i.e., the Resource Plans 2 through 6 that included one or more of the  
13 proposals.

14 **Q. What were these cost of capital impacts for the resource plans?**

15 A. There were no cost of capital impacts for Resource Plans 1, 7, and 8 because  
16 these resource plans included no proposals for additional purchased power. In  
17 addition, FPL's projected cost of capital was used in developing the capital  
18 costs of the FPL self-build options included in these resource plans. In regard  
19 to Resource Plans 2 through 6, there were impacts to FPL's cost of capital  
20 because these resource plans each included at least one proposal for a firm  
21 capacity purchase. The cost of capital impacts were calculated according to  
22 the methodology described in Appendix D of FPL's RFP in which an equity  
23 adjustment calculation based on Standard & Poor's (S&P) methodology is

1 calculated first, then the value of two mitigating factors are determined and  
2 subtracted from the equity adjustment calculation to derive a net equity  
3 adjustment, or cost of capital impact, value.

4  
5 The cost of capital impacts included a credit of \$1 million CPVRR for  
6 Resource Plan 2 that included the 3-year proposal P1 to a range of costs of  
7 \$69 to \$99 million CPVRR for Resource Plans 3 through 6 that included  
8 either a 20-year or a 25-year proposal. As presented in Appendix D of the  
9 RFP, the S&P equity adjustment calculation results in relatively low equity  
10 adjustment costs for a short-term proposal, and increasingly higher equity  
11 adjustment costs for a longer term proposal. This “escalation” in the equity  
12 adjustment costs depending upon the proposed term-of-service is higher than  
13 the growth in the mitigating factors values. This characteristic of the equity  
14 adjustment calculation resulted in the mitigating factors yielding a slight net  
15 equity adjustment credit for Resource Plan 2 that includes the 3-year proposal.  
16 However, Resource Plans 2 through 6 that include the 20-year or 25-year  
17 proposals, have a net equity adjustment cost.

18 **Q. What were the results of this evaluation of total costs?**

19 A. Exhibit SRS-14 presents the Economic Evaluation results for the resource  
20 plans after these additional costs have been included. This document presents  
21 the total system costs of each resource plan. The final Economic Evaluation  
22 results presented in Exhibit SRS-14 show that the economic advantage of  
23 Resource Plan 1, featuring WCEC 3 in 2011, is at least \$606 million CPVRR



1 compared to Resource Plans 2 through 6 that include one or more of the  
2 proposals, and at least \$137 million CPVRR compared to Resource Plans 7  
3 and 8 that include other FPL self-build options.

4  
5 Therefore, from an economic perspective, Resource Plan 1, featuring WCEC  
6 3 in 2011, is the best, most cost-effective choice for FPL's customers.

7 **Q. Did FPL change the cost estimate for its next planned generating unit at**  
8 **any time during the RFP?**

9 No.

10  
11 **IX. The Results of the RFP Non-Economic Evaluation**

12  
13 **Q. What is the objective of the Non-Economic Evaluation?**

14 **A.** The Non-Economic Evaluation is a form of risk assessment for the capacity  
15 options being considered. This evaluation focused on three aspects of risk:  
16 Environmental, Technical, and Project Execution. These three aspects of risk  
17 were evaluated for the individual capacity options in terms of having an  
18 acceptable or unacceptable level of risk. Representatives from FPL's  
19 Environmental, Power Generation, and Resource Assessment & Planning  
20 departments/business units (who had not participated in either the  
21 development or the selection of FPL's next planned generating unit)  
22 performed these evaluations.

1       **Q.     What were the results of the Non-Economic Evaluation?**

2       A.     The results of this evaluation are presented in Exhibit SRS-15. The results  
3             shown can be summarized in four statements. First, all three RFP proposals  
4             were found to have acceptable levels of risk in regard to the Environmental  
5             category. Second, two of the proposals, P2 and P3, were found to have  
6             unacceptable levels of risk in the Technical category. Third, all three of the  
7             proposals, P1, P2, and P3, were found to have unacceptable levels of risk in  
8             the Project Execution category. Fourth, in regard to the FPL self-build  
9             options featured in Resource Plans 1, 7, and 8, these units are based on the  
10            same design, and in two of the resource plans are sited at the same site, as the  
11            approved WCEC 1 & 2 CC units. Consequently, the FPL self-build options  
12            are considered to have acceptable levels of risk in regard to the  
13            Environmental and Technical categories. (The Project Execution category is  
14            not applicable for an FPL self-build option because no contract between FPL  
15            and a purchased power provider is required.)

16

17            As a result of these findings, FPL would need to meet with each of the  
18            Bidders and work together to resolve FPL's concerns in the Technical and  
19            Project Execution categories in order to further consider the proposals.

20

21            However, based on the results of the Economic Evaluation presented  
22            previously, none of the Resource Plans that include one or more proposals is  
23            closer than \$606 million CPVRR to Resource Plan 1 that includes WCEC 3 in

1 2011. Because the proposals are not economically competitive, FPL  
2 determined that attempts to resolve these risk-related issues were unnecessary.

3  
4 **X. The Results of the Eligibility Evaluation of the RFP**  
5 **Proposals**

6  
7 **Q. Please discuss the Eligibility Evaluation of the proposals received in**  
8 **response to FPL's RFP.**

9 A. FPL evaluated the individual proposals to ensure that they were properly  
10 submitted and complied with all of the Minimum Requirements listed in the  
11 RFP. The Eligibility Evaluation was on-going while the Economic and Non-  
12 Economic Evaluation work took place. This evaluation examined the  
13 information contained in the proposals and information supplied by the  
14 Bidders in response to FPL's request for clarification and/or to supply missing  
15 information. Using this information, each proposal was evaluated to determine  
16 if all of the RFP Minimum Requirements had been met.

17 **Q. What were the results of the Eligibility Evaluation?**

18 A. The results of this evaluation are presented in Exhibit SRS-16. As shown in  
19 this exhibit, all three RFP proposals failed to meet one or more of the RFP's  
20 Minimum Requirements.

1 As a result of this finding, FPL would need to meet with each of the Bidders  
2 to see if the proposals could be modified to comply with the RFP's Minimum  
3 Requirements so that FPL could further consider the proposals.

4  
5 However, as discussed above in regard to the Non-Economic Evaluation  
6 results, because the proposals are not economically competitive, FPL  
7 determined that attempts to resolve these failures to comply with RFP  
8 Minimum Requirements were unnecessary.

9  
10 **XI. Conclusions**

11  
12 **Q. Would you please summarize the results of the three evaluations;**  
13 **Economic, Non-Economic, and Eligibility?**

14 **A.** Yes. The Economic Evaluation results showed that Resource Plan 1, featuring  
15 WCEC 3 in 2011, is the economic choice because it is at least \$606 million  
16 CPVRR less expensive than any resource plan that included one or more of  
17 the proposals, and at least \$137 million CPVRR less expensive than either of  
18 the two resource plans that included other FPL self-build options.

19  
20 The Non-Economic Evaluation resulted in a finding that all three proposals  
21 received in response to the RFP had unacceptable levels of risk in the  
22 Technical and Project Execution categories of the evaluation. In the Eligibility  
23 Evaluation, all three proposals were also found to be not in compliance with

1 one or more of the Minimum Requirements listed in the RFP. However,  
2 because the resource plans that include the proposals are not economically  
3 competitive with Resource Plan 1 that includes WCEC 3 in 2011, FPL  
4 determined that it was unnecessary to meet with the Bidders in an attempt to  
5 resolve concerns regarding these risk issues and the failure to comply with the  
6 RFP's Minimum Requirements.

7  
8 Consequently, Resource Plan 1, featuring WCEC 3 in 2011, is the best choice  
9 for FPL's customers from both an economic and a risk profile perspective.  
10 Consequently, FPL's petition for an affirmative determination of need for  
11 WCEC 3 in 2011 should be granted.

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

13 **A. Yes.**

**Initial Projection of FPL's 2011 - 2017 Capacity Needs  
 (Without New Resource Additions \* )**

**Summer**

	(1)	(2)	(3) = (1)+(2)	(4)	(5)	(6)=(4)-(5)	(7)=(3)-(6)	(8)=(7)/(6)	(9)=((6)*1.20)-(3)
August of the Year	Projections of FPL Unit Capability (MW)	Projections of Firm Purchases (MW)	Projection of Total Capacity (MW)	Peak Load Forecast ** (MW)	Summer DSM Forecast *** (MW)	Forecast of Firm Peak (MW)	Forecast of Summer Reserves (MW)	Forecast of Summer Res. Margins w/o Additions (%)	MW Needed to Meet 20% Reserve Margin (MW)
2008	22,150	2,993	25,143	22,770	1,908	20,862	4,281	20.5%	(108)
2009	23,370	2,562	25,932	23,435	2,034	21,401	4,531	21.2%	(250)
2010	24,589	2,205	26,794	24,199	2,146	22,053	4,741	21.5%	(330)
2011	24,589	2,255	26,844	24,812	2,264	22,548	4,296	19.1%	<b>214</b>
2012	24,899	2,193	27,092	25,319	2,388	22,931	4,161	18.1%	<b>426</b>
2013	25,003	2,193	27,196	25,798	2,516	23,282	3,914	16.8%	<b>743</b>
2014	25,003	2,193	27,196	27,001	2,651	24,350	2,846	11.7%	<b>2,024</b>
2015	25,003	2,193	27,196	27,700	2,790	24,910	2,286	9.2%	<b>2,696</b>
2016	25,003	882	25,885	28,365	2,910	25,455	430	1.7%	<b>4,661</b>
2017	25,003	882	25,885	29,061	3,030	26,031	(146)	-0.6%	<b>5,353</b>

**Winter**

	(1)	(2)	(3) = (1)+(2)	(4)	(5)	(6)=(4)-(5)	(7)=(3)-(6)	(8)=(7)/(6)	(9)=((6)*1.20)-(3)
January of the Year	Projections of FPL Unit Capability (MW)	Projections of Firm Purchases (MW)	Projection of Total Capacity (MW)	Peak Load Forecast ** (MW)	Winter DSM Forecast *** (MW)	Forecast of Firm Peak (MW)	Forecast of Winter Reserves (MW)	Forecast of Winter Res. Margins w/o Additions (%)	MW Needed to Meet 20% Reserve Margin (MW)
2008	23,503	3,026	26,529	22,627	1,649	20,978	5,551	26.5%	(1,355)
2009	23,531	2,700	26,231	23,115	1,750	21,365	4,866	22.8%	(593)
2010	24,866	2,239	27,105	23,822	1,814	22,008	5,097	23.2%	(695)
2011	26,201	2,238	28,439	24,287	1,883	22,404	6,035	26.9%	(1,554)
2012	26,305	2,382	28,687	24,742	1,954	22,788	5,899	25.9%	(1,341)
2013	26,615	2,202	28,817	25,201	2,028	23,173	5,644	24.4%	(1,009)
2014	26,615	2,202	28,817	26,494	2,106	24,388	4,429	18.2%	<b>449</b>
2015	26,615	2,202	28,817	27,158	2,188	24,970	3,847	15.4%	<b>1,147</b>
2016	26,615	882	27,497	27,836	2,264	25,572	1,925	7.5%	<b>3,190</b>
2017	26,615	882	27,497	28,520	2,334	26,186	1,311	5.0%	<b>3,927</b>

\* No new FPL generating unit additions after WCEC 1 in 2009 and WCEC 2 in 2010 are assumed to be added. 287 MW of renewable energy firm capacity starting in the 2009 - 2012 time frame are assumed to be added. 414 MW of nuclear uprates is assumed. Approximately 104 MW are added in December 2011, 103 MW in May 2012, 103 MW in June 2012, and 104 MW by December 2012.

\*\* The Peak Load Forecast is based on FPL's IRP2007 load forecast plus Lee County load; the Initial Load Forecast is based on FPL's IRP2007 load forecast plus Lee County load.

\*\*\* DSM values shown represent cumulative load management and incremental conservation capability.

### Evaluation of FPL Self-Build Options: Resource Plans Analyzed

Self-Build Option:	3x1 G CC	3x1 G CC	2x1 G CC	3x1 G CC
Site:	WCEC	Martin	WCEC	WCEC
In-Service Year:	2011	2012	2012	2012

Year	Resource Plan A	Resource Plan B	Resource Plan C	Resource Plan D
2011	3x1 G CC at WCEC	214 MW PPA (one year)	214 MW PPA (one year)	214 MW PPA (one year)
2012	---	3x1 G CC at Martin	2x1 G CC at WCEC	3x1 G CC at WCEC
2013	---	---	---	---
2014	3x1 G CC at Martin	3x1 G CC at WCEC	3x1 G CC at Martin	3x1 G CC at Martin
2015	3 x 1 G CC	3 x 1 G CC	3 x 1 G CC	3 x 1 G CC
2016	3 x 1 G CC	3 x 1 G CC	3 x 1 G CC	3 x 1 G CC
2017	2 x 1 G CC	2 x 1 G CC	3 x 1 G CC	2 x 1 G CC
2018	Turkey Point 6	Turkey Point 6	Turkey Point 6	Turkey Point 6
2019	---	---	---	---
2020	Turkey Point 7	Turkey Point 7	Turkey Point 7	Turkey Point 7
2021 - 2040	36 - 2x1 F CC	36 - 2x1 F CC	36 - 2x1 F CC	36 - 2x1 F CC

**Evaluation of FPL Self-Build Options: Economic Analysis Results**  
 (Millions, 2007 \$, CPVRR, 2007 - 2040)

Resource Plans/Self-Build Options Evaluated		(1)	(2)	(3)	(4)	(5) = sum of (1) thru (4)	(6)
Resource Plan	Self-Build Option	Generation System Costs *	Transmission System Losses	Upstream Gas Pipeline Costs **	Net Equity Adjustment ***	Total	Difference from Lowest Cost Resource Plan
Resource Plan A	WCEC 3x1 G CC in 2011	159,820	972	0	0	160,792	0
Resource Plan B	Martin 3x1 G CC in 2012	159,962	987	0	0	160,949	157
Resource Plan C	WCEC 2x1 G CC in 2012	160,246	978	0	0	161,224	432
Resource Plan D	WCEC 3x1 G CC in 2012	159,960	980	0	0	160,940	148

\* Generation system results include: generation capital, fixed O&M, capital replacement, variable O&M, project fuel, FPL system fuel, firm gas transportation, transmission capital, startup costs, and system emissions.

\*\* All gas system costs were captured in the Generation System Costs category.

\*\*\* The capital costs for all of the self-build options were based on a 55.8% equity / 44.2% debt capital structure. Therefore, there are no capital structure-related cost impacts.



**(See Exhibit SRS-4: "FPL's 2007 Request for Proposals  
Resource Need: 2011 & 2012" attached as a separate document)**

**List of Organizations Submitting Proposals**  
(in alphabetical order)

<b>Organization</b>	<b>Number of Proposals Submitted</b>
Reliant	1
Southern Power Company	2
	-----
	3

## Proposal Details

<b>Proposal Code Number</b>	<b>Capacity Offered (Summer MW)</b>	<b>Technology</b>	<b>Proposed Term-of-Service Dates</b>	<b>Proposed Term-of-Service (Years)</b>
Proposal 1 (P1)	568	Existing Steam Unit	1/1/2011 thru 12/31/2013	3
Proposal 2 (P2)	600	2x1 F CC	6/1/2012 thru 5/31/2037	25
Proposal 3 (P3)	600	2x1 F CC	6/1/2012 thru 5/31/2032	20

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1,168 \*

\* Proposals P2 and P3 are mutually exclusive; i.e., only one of these can be selected.

**(See Exhibit SRS-7: "FPL's Ten Year Power Plant Site Plan: 2008-2017"  
attached as a separate document)**

**Revised Projection of FPL's 2011 - 2017 Capacity Needs  
 (Without New Resource Additions \*)**

<u>Summer</u>									
	(1)	(2)	(3) = (1)+(2)	(4)	(5)	(6)=(4)-(5)	(7)=(3)-(6)	(8)=(7)/(6)	(9)=((6)*1.20)-(3)
August of the Year	Projections of FPL Unit Capability (MW)	Projections of Firm Purchases (MW)	Projection of Total Capacity (MW)	Peak Load Forecast ** (MW)	Summer DSM Forecast *** (MW)	Forecast of Firm Peak (MW)	Forecast of Summer Reserves (MW)	Forecast of Summer Res. Margins w/o Additions (%)	MW Needed to Meet 20% Reserve Margin (MW)
2008	22,149	2,993	25,142	22,356	1,908	20,448	4,693	23.0%	(604)
2009	23,369	2,562	25,931	22,792	2,034	20,758	5,172	24.9%	(1,021)
2010	24,588	2,205	26,793	23,554	2,146	21,408	5,384	25.2%	(1,103)
2011	24,588	2,237	26,825	24,191	2,264	21,927	4,898	22.3%	(512)
2012	24,898	2,175	27,073	24,837	2,388	22,449	4,624	20.6%	(134)
2013	25,002	2,175	27,177	25,414	2,516	22,898	4,278	18.7%	301
2014	25,002	2,175	27,177	26,576	2,651	23,925	3,251	13.6%	1,534
2015	25,002	2,175	27,177	27,241	2,790	24,451	2,726	11.1%	2,165
2016	25,002	864	25,866	27,932	2,910	25,022	844	3.4%	4,161
2017	25,002	864	25,866	28,621	3,030	25,591	275	1.1%	4,844

<u>Winter</u>									
	(1)	(2)	(3) = (1)+(2)	(4)	(5)	(6)=(4)-(5)	(7)=(3)-(6)	(8)=(7)/(6)	(9)=((6)*1.20)-(3)
January of the Year	Projections of FPL Unit Capability (MW)	Projections of Firm Purchases (MW)	Projection of Total Capacity (MW)	Peak Load Forecast ** (MW)	Winter DSM Forecast *** (MW)	Forecast of Firm Peak (MW)	Forecast of Winter Reserves (MW)	Forecast of Winter Res. Margins w/o Additions (%)	MW Needed to Meet 20% Reserve Margin (MW)
2008	23,535	3,026	26,561	22,332	1,649	20,683	5,878	28.4%	(1,741)
2009	23,563	2,700	26,263	22,755	1,750	21,005	5,258	25.0%	(1,057)
2010	24,898	2,239	27,137	23,454	1,814	21,640	5,497	25.4%	(1,169)
2011	26,233	2,238	28,471	23,971	1,883	22,088	6,383	28.9%	(1,965)
2012	26,337	2,364	28,701	24,487	1,954	22,533	6,168	27.4%	(1,661)
2013	26,647	2,184	28,831	24,976	2,028	22,948	5,883	25.6%	(1,293)
2014	26,647	2,184	28,831	26,290	2,106	24,184	4,647	19.2%	190
2015	26,647	2,184	28,831	26,979	2,188	24,791	4,040	16.3%	919
2016	26,647	1,254	27,901	27,690	2,264	25,426	2,475	9.7%	2,611
2017	26,647	864	27,511	28,418	2,334	26,084	1,427	5.5%	3,790

\* No new FPL generating unit additions after WCEC 1 in 2009 and WCEC 2 in 2010 are assumed to be added. 269 MW of renewable energy firm capacity starting in the 2009 - 2012 time frame are assumed to be added. 414 MW of nuclear uprates is assumed. Approximately 104 MW are added in December 2011, 103 MW in May 2012, 103 MW in June 2012, and 104 MW by December 2012.

\*\* The Peak Load Forecast is based on FPL's Feb 2008 load forecast that includes Lee County load; the Revised Load Forecast.

\*\*\* DSM values shown represent cumulative load management and incremental conservation capability.

### Summary of Resource Plans Evaluated

Resource Plan	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021- 2038
Resource Plan 1	WCEC 3	---	---	3x1 G CC	---	2 - 3x1 G CC	---	Turkey Point 6	345 MW 1-yr PPA	Turkey Point 7	35 - 2x1 F Fillers
Resource Plan 2	P1	---	---	2 - 3x1 G CC	---	2 - 3x1 G CC	---	Turkey Point 6	345 MW 1-yr PPA	Turkey Point 7	35 - 2x1 F Fillers
Resource Plan 3	---	P2	---	3x1 G CC	3x1 G CC	3x1 G CC	3x1 G CC	Turkey Point 6	---	Turkey Point 7	35 - 2x1 F Fillers
Resource Plan 4	---	P3	---	3x1 G CC	3x1 G CC	3x1 G CC	3x1 G CC	Turkey Point 6	---	Turkey Point 7	35 - 2x1 F Fillers
Resource Plan 5	P1	P2	---	3x1 G CC	3x1 G CC	3x1 G CC	3x1 G CC	Turkey Point 6	---	Turkey Point 7	35 - 2x1 F Fillers
Resource Plan 6	P1	P3	---	3x1 G CC	3x1 G CC	3x1 G CC	3x1 G CC	Turkey Point 6	---	Turkey Point 7	35 - 2x1 F Fillers
Resource Plan 7	---	WCEC 3	---	3x1 G CC	---	2 - 3x1 G CC	---	Turkey Point 6	345 MW 1-yr PPA	Turkey Point 7	35 - 2x1 F Fillers
Resource Plan 8	---	---	3x1 G CC	3x1 G CC	---	2 - 3x1 G CC	---	Turkey Point 6	345 MW 1-yr PPA	Turkey Point 7	35 - 2x1 F Fillers

Note: The proposals P1, P2, and P3 appear in their proposed in-service years. Please see Exhibit SRS-6 for their proposed terms of service.

**Economic Evaluation Results for Resource Plans - Generation System Costs Only**  
(Millions, CPVRR, 2008\$, 2008 - 2038)

	(1)	(2)	(3)	(4)	(5)	(6)	(7) = sum of (1) thru (6)	(8)
	Transmission-Related Costs							
Resource Plan	Generation System Costs *	Integration	Peak Hour Capacity Losses	Annual Energy Losses	Upstream Gas Pipeline Costs	Net Equity Adjustment	Total	Difference from Lowest Cost Resource Plan
Resource Plan 1	142,176	0	0	0	0	0	142,176	0
Resource Plan 2	142,681	0	0	0	0	0	142,681	505
Resource Plan 3	142,790	0	0	0	0	0	142,790	614
Resource Plan 4	142,845	0	0	0	0	0	142,845	669
Resource Plan 5	142,870	0	0	0	0	0	142,870	694
Resource Plan 6	142,924	0	0	0	0	0	142,924	748
Resource Plan 7	142,307	0	0	0	0	0	142,307	131
Resource Plan 8	142,602	0	0	0	0	0	142,602	426

\* Generation system results include: generation capital, fixed O&M, capital replacement, variable O&M, project fuel, FPL system fuel, firm gas transportation, transmission interconnection capital, startup costs, system emissions, and proposal payments.

**Economic Evaluation Results for Resource Plans - Generation System  
 and Transmission-Related Costs Only**  
 (Millions, CPVRR, 2008\$, 2008 - 2038)

	(1)	(2)	(3)	(4)	(5)	(6)	(7) = sum of (1) thru (6)	(8)
	<b>Transmission-Related Costs</b>							
<b>Resource Plan</b>	<b>Generation System Costs *</b>	<b>Integration</b>	<b>Peak Hour Capacity Losses **</b>	<b>Annual Energy Losses **</b>	<b>Upstream Gas Pipeline Costs</b>	<b>Net Equity Adjustment</b>	<b>Total</b>	<b>Difference from Lowest Cost Resource Plan</b>
Resource Plan 1	142,176	0	0	0	0	0	142,176	0
Resource Plan 2	142,681	0	13	89	0	0	142,783	607
Resource Plan 3	142,790	0	10	110	0	0	142,910	734
Resource Plan 4	142,845	0	10	116	0	0	142,971	795
Resource Plan 5	142,870	0	16	121	0	0	143,007	831
Resource Plan 6	142,924	0	16	126	0	0	143,066	890
Resource Plan 7	142,307	0	0	6	0	0	142,313	137
Resource Plan 8	142,602	0	6	28	0	0	142,636	460

\* Generation system results include: generation capital, fixed O&M, capital replacement, variable O&M, project fuel, FPL system fuel, firm gas transportation, transmission interconnection capital, startup costs, system emissions, and proposal payments.

\*\* The transmission-related costs of losses are relative to the costs for Resource Plan 1.



### Calculation of Peak Hour Loss Cost for Resource Plan 2

Discount Rate =	0.083
Purchase Proxy Starting Cost (\$/kw) =	\$5.00
Annual Escalation Rate for Proxy Purchase =	2%

Year	(1) Proxy Purchase Cost (\$/kw-mo)	(2) Discount Factor	(3) Peak Load Loss (MW)	(4) = (1)*(3)*12 Peak Hour Capacity Loss Cost Nominal (\$ 000)	(5) = (2)*(4) Peak Hour Capacity Loss Cost NPV (\$ 000)
2008	\$0.00	1.000	0.00	\$0	\$0
2009	\$0.00	0.923	0.00	\$0	\$0
2010	\$0.00	0.853	0.00	\$0	\$0
2011	\$5.00	0.787	0.00	\$0	\$0
2012	\$5.10	0.727	0.00	\$0	\$0
2013	\$5.20	0.671	14.08	\$879	\$590
2014	\$5.31	0.620	22.91	\$1,459	\$904
2015	\$5.41	0.572	22.91	\$1,488	\$851
2016	\$5.52	0.528	22.56	\$1,494	\$790
2017	\$5.63	0.488	22.56	\$1,524	\$744
2018	\$5.74	0.451	22.56	\$1,555	\$700
2019	\$5.86	0.416	22.56	\$1,586	\$660
2020	\$5.98	0.384	22.56	\$1,618	\$621
2021	\$6.09	0.355	22.56	\$1,650	\$585
2022	\$6.22	0.327	22.56	\$1,683	\$551
2023	\$6.34	0.302	22.56	\$1,717	\$519
2024	\$6.47	0.279	22.56	\$1,751	\$489
2025	\$6.60	0.258	22.56	\$1,786	\$460
2026	\$6.73	0.238	22.56	\$1,822	\$434
2027	\$6.86	0.220	22.56	\$1,858	\$408
2028	\$7.00	0.203	22.56	\$1,895	\$385
2029	\$7.14	0.187	22.56	\$1,933	\$362
2030	\$7.28	0.173	22.56	\$1,972	\$341
2031	\$7.43	0.160	22.56	\$2,011	\$321
2032	\$7.58	0.148	22.56	\$2,052	\$303
2033	\$7.73	0.136	22.56	\$2,093	\$285
2034	\$7.88	0.126	22.56	\$2,134	\$269
2035	\$8.04	0.116	22.56	\$2,177	\$253
2036	\$8.20	0.107	22.56	\$2,221	\$238
2037	\$8.37	0.099	22.56	\$2,265	\$224
2038	\$8.53	0.091	22.56	\$2,310	\$211
				<b>NPV Total (\$000) =</b>	<b>\$12,500</b>

### Calculation of Annual Energy Loss Cost for Resource Plan 2

On-Peak Hours =	876	(or 10% of all hours)
Off-Peak Hours =	6,570	
Discount Factor =	0.083	

Year	(1) On-Peak Marginal Energy Cost (\$/mwh)	(2) Off-Peak Marginal Energy Cost (\$/mwh)	(3) Discount Factor	(4) Peak Load Loss (from SRS-11) (MW)	(5) = (4)*On-Peak Hours On - Peak Hours Annual Energy Loss (MWH)	(6) = (1)*(5)/1000 On - Peak Hours Annual Energy Loss Cost Nominal (\$ 000)	(7) Average Load Loss (MW)	(8) = (7)*Off-Peak Hours Off - Peak Hours Annual Energy Loss (MWH)	(9) = (2)*(8)/1000 Off - Peak Hours Annual Energy Loss Cost Nominal (\$ 000)	(10) = (6) + (9) Total Annual Energy Loss Cost Nominal (\$ 000)	(11) = (3)*(10) Total Annual Energy Loss Cost NPV (\$ 000)
2008	0	0	1.000	0	0	\$0	0	0	\$0	\$0	\$0
2009	0	0	0.923	0	0	\$0	0	0	\$0	\$0	\$0
2010	0	0	0.853	0	0	\$0	0	0	\$0	\$0	\$0
2011	\$89.47	\$62.90	0.787	0	0	\$0	15.81	103,872	\$6,534	\$6,534	\$5,144
2012	\$86.35	\$60.37	0.727	0.00	0	\$0	12.02	78,971	\$4,768	\$4,768	\$3,466
2013	\$92.70	\$65.75	0.671	14.08	12,334	\$1,143	12.02	78,971	\$5,193	\$6,336	\$4,253
2014	\$98.31	\$70.44	0.620	22.91	20,069	\$1,973	12.02	78,971	\$5,563	\$7,536	\$4,670
2015	\$106.74	\$75.70	0.572	22.91	20,069	\$2,142	12.02	78,971	\$5,978	\$8,120	\$4,647
2016	\$112.01	\$78.83	0.528	22.56	19,763	\$2,214	12.02	78,971	\$6,226	\$8,439	\$4,459
2017	\$117.67	\$81.36	0.488	22.56	19,763	\$2,326	12.02	78,971	\$6,425	\$8,750	\$4,269
2018	\$124.31	\$84.56	0.451	22.56	19,763	\$2,457	12.02	78,971	\$6,678	\$9,135	\$4,115
2019	\$132.77	\$90.50	0.416	22.56	19,763	\$2,624	12.02	78,971	\$7,147	\$9,770	\$4,064
2020	\$141.82	\$95.76	0.384	22.56	19,763	\$2,803	12.02	78,971	\$7,562	\$10,365	\$3,981
2021	\$147.21	\$98.30	0.355	22.56	19,763	\$2,909	12.02	78,971	\$7,763	\$10,672	\$3,785
2022	\$151.82	\$100.19	0.327	22.56	19,763	\$3,000	12.02	78,971	\$7,912	\$10,912	\$3,574
2023	\$157.88	\$103.42	0.302	22.56	19,763	\$3,120	12.02	78,971	\$8,167	\$11,287	\$3,413
2024	\$164.19	\$106.67	0.279	22.56	19,763	\$3,245	12.02	78,971	\$8,424	\$11,669	\$3,258
2025	\$170.99	\$110.33	0.258	22.56	19,763	\$3,379	12.02	78,971	\$8,713	\$12,092	\$3,118
2026	\$179.03	\$115.62	0.238	22.56	19,763	\$3,538	12.02	78,971	\$9,130	\$12,669	\$3,016
2027	\$182.71	\$117.57	0.220	22.56	19,763	\$3,611	12.02	78,971	\$9,284	\$12,895	\$2,835
2028	\$179.89	\$121.88	0.203	22.56	19,763	\$3,555	12.02	78,971	\$9,625	\$13,180	\$2,675
2029	\$186.42	\$125.30	0.187	22.56	19,763	\$3,684	12.02	78,971	\$9,895	\$13,579	\$2,545
2030	\$191.97	\$130.61	0.173	22.56	19,763	\$3,794	12.02	78,971	\$10,314	\$14,108	\$2,441
2031	\$189.51	\$134.33	0.160	22.56	19,763	\$3,745	12.02	78,971	\$10,608	\$14,353	\$2,293
2032	\$180.90	\$139.38	0.148	22.56	19,763	\$3,575	12.02	78,971	\$11,007	\$14,582	\$2,151
2033	\$191.30	\$144.44	0.136	22.56	19,763	\$3,781	12.02	78,971	\$11,406	\$15,187	\$2,069
2034	\$187.29	\$149.17	0.126	22.56	19,763	\$3,701	12.02	78,971	\$11,780	\$15,482	\$1,947
2035	\$200.15	\$154.77	0.116	22.56	19,763	\$3,955	12.02	78,971	\$12,222	\$16,178	\$1,879
2036	\$210.07	\$160.90	0.107	22.56	19,763	\$4,151	12.02	78,971	\$12,707	\$16,858	\$1,808
2037	\$206.71	\$166.04	0.099	22.56	19,763	\$4,085	12.02	78,971	\$13,112	\$17,197	\$1,703
2038	\$212.91	\$171.77	0.091	22.56	19,763	\$4,208	12.02	78,971	\$13,565	\$17,773	\$1,625
<b>NPV Total (\$000) =</b>										<b>\$89,206</b>	

**Economic Evaluation Results for Resource Plans - All Costs**  
 (Millions, CPVRR, 2008\$, 2008 - 2038)

	(1)	(2)	(3)	(4)	(5)	(6)	(7) = sum of (1) thru (6)	(8)
	Transmission-Related Costs							
Resource Plan	Generation System Costs *	Integration	Peak Hour Capacity Losses **	Annual Energy Losses **	Upstream Gas Pipeline Costs	Net Equity Adjustment	Total	Difference from Lowest Cost Resource Plan
Resource Plan 1	142,176	0	0	0	0	0	142,176	0
Resource Plan 2	142,681	0	13	89	0	(1)	142,782	606
Resource Plan 3	142,790	0	10	110	0	99	143,009	833
Resource Plan 4	142,845	0	10	116	0	71	143,041	865
Resource Plan 5	142,870	0	16	121	0	98	143,105	929
Resource Plan 6	142,924	0	16	126	0	69	143,136	960
Resource Plan 7	142,307	0	0	6	0	0	142,313	137
Resource Plan 8	142,602	0	6	28	0	0	142,636	460

\* Generation system results include: generation capital, fixed O&M, capital replacement, variable O&M, project fuel, FPL system fuel, firm gas transportation, transmission interconnection capital, startup costs, system emissions, and proposal payments.

\*\* The transmission-related costs of losses are relative to the costs for Resource Plan 1.

## Non-Economic Evaluation Results

### Non-Economic Evaluation Categories

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<u>Capacity Option</u>	<u>Environmental</u>	<u>Technical</u>	<u>Project Execution</u>
P1	Acceptable	Acceptable	Unacceptable
P2	Acceptable	Unacceptable	Unacceptable
P3	Acceptable	Unacceptable	Unacceptable
WCEC 3 in 2011/2012	Acceptable	Acceptable	Not Applicable *
FPL Greenfield in 2013	Acceptable	Acceptable	Not Applicable *

\* The Project Execution category is not applicable for a self-build option.

## Eligibility Determination Evaluation Results

<b>Proposal</b> -----	<b>Did Proposal Meet All RFP Minimum Requirements ?</b> -----	<b>Explanation</b> -----
P1	No	The proposal failed to meeting the following Minimum Requirements: General Minimum Requirements #4 and #10.
P2	No	The proposal failed to meeting the following Minimum Requirements: General Minimum Requirements # 4 and #10, and Specific Minimum Requirement # 6.
P3	No	The proposal failed to meeting the following Minimum Requirements: General Minimum Requirements # 4 and #10, and Specific Minimum Requirement # 6.