

BEFORE THE
FLORIDA PUBLIC SERVICE COMMISSION

In the Matter of:

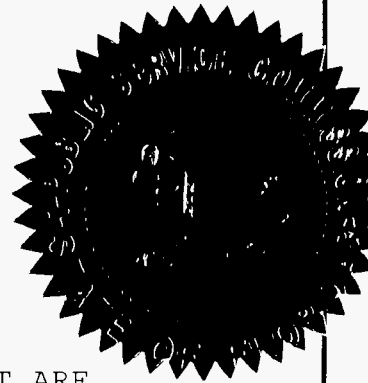
PETITION TO DETERMINE NEED FOR WEST DOCKET NO. 080203-EI
COUNTY ENERGY CENTER UNIT 3 ELECTRICAL
POWER PLANT, BY FLORIDA POWER & LIGHT
COMPANY.

PETITION FOR DETERMINATION OF NEED FOR DOCKET NO. 080245-EI
CONVERSION OF RIVIERA PLANT IN PALM
BEACH COUNTY, BY FLORIDA POWER & LIGHT
COMPANY.

PETITION FOR DETERMINATION OF NEED FOR DOCKET NO. 080246-EI
CONVERSION OF CAPE CANAVERAL PLANT IN
BREVARD COUNTY BY FLORIDA POWER &
LIGHT COMPANY.

VOLUME 2

Pages 52 through 301



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PROCEEDINGS: HEARING

BEFORE: CHAIRMAN MATTHEW M. CARTER, II
COMMISSIONER LISA POLAK EDGAR
COMMISSIONER KATRINA J. McMURRIAN
COMMISSIONER NANCY ARGENZIANO
COMMISSIONER NATHAN A. SKOP

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5 4075 Esplanade Way
6 Tallahassee, Florida

7

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9 REPORTED BY: JANE FAUROT, RPR
10 Official FPSC Reporter
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P R O C E E D I N G S

(Transcript follows in sequence from Volume 1.)

CHAIRMAN CARTER: We are back on the record. And we just completed our public testimony portion of this proceeding. Now, Ms. Brown, you're recognized.

MS. BROWN: We are moving into the technical portion of the hearing. The next thing we need to deal with is the Comprehensive Exhibit List. We have passed that out for the Commissioners' convenience, and at this time we would like to mark and move the exhibit list itself into the record. The list is Exhibit 1.

Also at this time, we would ask that Staff's Stipulated Composite Exhibit and Staff's Stipulated Confidential Composite Exhibit be marked as Exhibits 2 and 3 and moved into the record at this time.

CHAIRMAN CARTER: Are there any objections?

MR. ANDERSON: None.

CHAIRMAN CARTER: No objections. Show it done.

(Exhibits 1, 2, and 3 marked for identification and admitted into the record.)

MS. BROWN: And, Mr. Chairman, we have one more stipulated exhibit to mark as Exhibit Number 98, and that includes the affidavits of public notice that FPL has passed around. We would like to move that into the record.

CHAIRMAN CARTER: That's the proof of publication?

1 **MS. BROWN:** Yes.

2 **CHAIRMAN CARTER:** Without objection, show it done.

3 (Exhibit Number 98 marked for identification and
4 admitted into evidence.)

5 **MS. BROWN:** And that's Exhibit 98. All the other
6 exhibits on the list should be marked as indicated and moved
7 into the record after each witness has testified.

8 (Exhibits 4 though 96 marked for identification.)

9 **CHAIRMAN CARTER:** Okay, then. Any other preliminary
10 matters before we go forward?

11 **MS. BROWN:** None that I'm aware of.

12 **CHAIRMAN CARTER:** Okay. Are all the witnesses here?

13 **MR. ANDERSON:** All of them are in attendance. A
14 couple of them are in the hearing room. We do have a short
15 opening, though, if we might offer it.

16 **CHAIRMAN CARTER:** You're recognized for your opening.

17 **MR. ANDERSON:** Great. Thank you. Good morning,
18 Chairman Carter and Commissioners.

19 FPL appears here today to request that the Commission
20 approve FPL's need determination requests for West County Unit
21 3 in 2011 and for the conversion of our Cape Canaveral and
22 Riviera plants to be placed into service in 2013 and 2014, and
23 for an exemption from the Commission's bid rule for the
24 conversion projects.

25 FPL appreciates staff's extensive work performed on

1 this case. Staff asked more than 100 interrogatory questions,
2 requested supplemental economic analyses, and conducted
3 depositions. We are happy to note that staff's positions in
4 the prehearing order support granting FPL's request for need
5 determinations, and with respect to the conversion projects
6 exemption from the Commission's Bid Rule. There are no
7 intervening parties and no opposing testimony or evidence. Our
8 witnesses are here to present their testimony and answer any
9 questions you may have.

10 Before calling our witnesses, here is a high level
11 summary of key reasons supporting issuance of the requested
12 need determination orders and the bid rule exemption. Placing
13 West County Unit 3 into operation in 2011 creates a unique
14 opportunity to remove old less efficient units from service at
15 the Cape Canaveral and Riviera plants. This opportunity occurs
16 because West County Unit 3 will provide enough electric reserve
17 margin, ensuring reliable electric service to customers that
18 the Cape Canaveral and Riviera units may be removed from
19 service and new units installed. Each unit placed in operation
20 will immediately provide fuel cost savings to customers,
21 conserve oil and natural gas, and lower FPL's air emissions,
22 including greenhouse gases.

23 First, let's consider cost savings for customers.
24 FPL projects about \$1.2 billion or more in cost savings for
25 customers in present value 2008 dollars from operating West

1 County 3 and the conversion units compared with other resource
2 plans. These savings mainly come from lower fossil fuel usage
3 due to the very high-efficiency of the new units.

4 Let's consider how much oil and natural gas will be
5 conserved by FPL's proposals. To begin with, FPL will use
6 2.1 million fewer barrels of fuel oil and about 18 million
7 MMBtu less natural gas during just the first two years of West
8 County Unit 3's operation. Over the lifetime of the units,
9 trillions of MMBtu of oil and natural gas will be conserved.
10 Using less fossil fuel means less vulnerability to fossil fuel
11 price increases and supply interruptions and reduced reliance
12 on fossil fuels.

13 Conserving fossil fuel also means lower air
14 emissions. How much less emissions? FPL's proposal before you
15 today is projected cumulatively to lower FPL's system emissions
16 by about 18 million tons of carbon dioxide as well as many tons
17 of sulfur dioxide and nitrous oxide. These lowered emissions
18 are good for Florida's environment and also result in lower
19 environmental compliance costs for FPL's customers.

20 Let's consider the contribution of these units to
21 helping ensure reliable electric service. The generating
22 capacity from these base load high-efficiency units is needed
23 to provide reliable service for our customers. FPL will need
24 more than 4,800 megawatts of new capacity in 2011 through 2017
25 in order to maintain reliable service. West County 3 and the

1 Canaveral and Riviera conversions together provide about
2 2,300 megawatts when you take into account the old units we are
3 taking out of service. So it's a capacity addition of about
4 2,300 megawatts. That is a little less than half of the
5 4,800 megawatts of new capacity additions needed to serve
6 customers through 2017.

7 This very large total need means that even after
8 adding West County 3 and converting the Cape Canaveral and
9 Riviera plants, there is more than ample room in FPL's plans
10 for additional energy efficiency, demand-side management, and
11 renewable energy resources in addition to those already planned
12 by FPL and described in the evidentiary record before you. The
13 record in this case includes substantial detail about FPL's
14 industry leading achievements in energy efficiency and
15 demand-side management as well as its on-going efforts to
16 develop renewable energy in Florida.

17 In conclusion, after you hear from the witnesses and
18 consider the evidence in this proceeding, FPL asks that the
19 Commission enter an order granting the requested need
20 determinations and exempting the Cape Canaveral and Riviera
21 conversions from the requirements of the bid rule.

22 Thank you.

23 **CHAIRMAN CARTER:** Thank you, Mr. Anderson.

24 Before we proceed further, Commissioners, just kind
25 of to allow you to plan your days and how we're doing today,

1 our plans are to take a break for lunch around 1:00 today, and
2 that will give staff an opportunity for lunch as well as an
3 additional time. We will come back around 2:30, so staff can
4 not only have lunch themselves, but also get the documents and
5 perfect the record and have everything taken care of there.
6 And we will go until about 5:00 today. We'll stop -- hopefully
7 we can complete it, but if not we will go until 5:00 today.

8 Commissioners, anything further? Having that done,
9 all witnesses, would you please stand.

10 Mr. Anderson, anything further from you?

11 **MR. ANDERSON:** No, sir.

12 **CHAIRMAN CARTER:** Would you please raise your right
13 hand.

14 (Witnesses sworn collectively.)

15 **CHAIRMAN CARTER:** Thank you. You may be seated. Mr.
16 Anderson, you're recognized.

17 **MR. ANDERSON:** Thank you. FPL would call as its
18 first witness Mr. Rene Silva.

19 RENE SILVA

20 was called as a witness on behalf of Florida Power and Light
21 Company, and having been duly sworn, testified as follows:

22 DIRECT EXAMINATION

23 BY MR. ANDERSON:

24 **Q** Good morning, Mr. Silva.

25 **A** Good morning, Mr. Anderson.

1 **Q** I see you have been sworn. Would you please state
2 your name and business address.

3 **A** My name is Rene Silva. My business address is 9250
4 West Flagler Street, Miami, Florida 33174.

5 **Q** By whom are you employed and in what capacity?

6 **A** By Florida Power and Light Company as Director of
7 Resource Assessment and Planning.

8 **Q** Have you prepared and filed 32 pages of Direct
9 Testimony in this proceeding regarding West County 3?

10 **A** Yes, I have.

11 **Q** Have you prepared and filed 56 pages of Prefiled
12 Direct Testimony in the conversion dockets for Cape Canaveral
13 and Riviera?

14 **A** Yes, I have.

15 **Q** Did you file any errata to your testimony?

16 **A** I did.

17 **Q** Do you have any changes or revisions other than those
18 stated in the errata?

19 **A** Yes, I have a couple.

20 **Q** Would you tell us what those are?

21 **A** In the West County 3 testimony, Page 9, Line 17. In
22 the parenthetical, remove the words "but not" and insert in its
23 place "whether or not they provide." In the testimony for the
24 conversions, on Page 12, Line 10, there will be a similar
25 change. In the parenthetical remove the words "but not" and

1 insert in its place "whether or not they provide." That is the
2 extent of the changes.

3 **Q** Mr. Silva, if I asked you the same questions
4 contained in your prefiled direct testimony other than the
5 changes and revisions you have told us about in your errata,
6 would your answers be the same?

7 **A** Yes.

8 **MR. ANDERSON:** We would ask that the prefiled direct
9 testimony that Mr. Silva has sponsored be inserted into the
10 record as though read.

11 **CHAIRMAN CARTER:** The prefiled testimony will be
12 inserted into the record as though read.

13 BY MR. ANDERSON:

14 **Q** You are sponsoring some exhibits?

15 **A** Yes, I am.

16 **Q** They consist of Exhibits RS-1 and 2 in the West
17 County 3 docket?

18 **A** That is correct.

19 **Q** And five pages, Exhibits RS-1 through 4 in the
20 conversion dockets?

21 **A** Yes, that is correct.

22 **MR. ANDERSON:** Mr. Chairman, I would note that
23 Mr. Silva's exhibits have been premarked as Hearing
24 Identification Numbers 4 and 5 in West County, Hearing ID
25 Numbers 49 through 52 in the conversion dockets in the

1 Comprehensive Exhibit List.

2 **CHAIRMAN CARTER:** One second, Mr. Anderson.

3 Forty-nine and --

4 **MR. ANDERSON:** Forty-nine through 52, sir.

5 **CHAIRMAN CARTER:** Forty-nine through 52. Okay.

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1 **BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION**

2 **FLORIDA POWER & LIGHT COMPANY**

3 **DIRECT TESTIMONY OF RENE SILVA**

4 **DOCKET NO. 08_____ -EI**

5 **APRIL 8, 2008**

6

7 **INTRODUCTION AND CREDENTIALS**

8

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

10 A. My name is Rene Silva. My business address is 9250 West Flagler Street,
11 Miami, Florida 33174.

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

13 A. I am employed by Florida Power & Light Company (FPL or the Company) as
14 Senior Director, Resource Assessment and Planning (RAP).

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

16 A. I manage the RAP group, the department that is responsible for developing
17 FPL's integrated resource plan (IRP) and other related activities, such as
18 developing system production cost projections for various generation capacity
19 alternatives, analyzing demand side management (DSM) programs, and
20 negotiating and administering wholesale power purchase agreements (PPAs).

21 **Q. Please describe your educational background business experience.**

22 A. I graduated from the University of Michigan with a Bachelor of Science
23 Degree in Engineering Science in 1974. From 1974 until 1978, I was

1 employed by the Nuclear Energy Division of the General Electric Company in
2 the area of nuclear fuel design. While employed by General Electric, I earned
3 a Masters Degree in Mechanical Engineering from San Jose State University
4 in 1978.

5
6 I joined the Fuel Resources Department of FPL in 1978, as a fuel engineer,
7 responsible for purchasing nuclear fuel. While employed by FPL, I earned a
8 Masters Degree in Business Administration from the University of Miami in
9 1986. In 1987 I became Manager of Fossil Fuel, responsible for FPL's
10 purchases of fuel oil, natural gas and coal. In 1990, I assumed the position of
11 Director, Fuel Resources Department, and in 1991 became Manager of Fuel
12 Services, responsible for coordinating the development and implementation of
13 FPL's fossil fuel procurement strategy. In 1998, I was named Manager of
14 Business Services in the Power Generation Division (PGD). In that capacity,
15 I managed the group that is responsible for coordinating (a) the development
16 of PGD's long-term plan for the effective and efficient construction, operation
17 and maintenance of FPL's fossil generating plants, (b) the preparation of PGD
18 annual budgets and tracking of expenditures, and (c) the preparation of reports
19 related to fossil generating plant performance. On May 1, 2002, I was
20 appointed to my current position.

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

22 A. Yes. I am sponsoring Exhibits RS-1 and RS-2, which are attached to my
23 direct testimony.

1 Exhibit RS-1 Summary of Benefits of West County Energy
2 Center Unit 3 (WCEC 3) in 2011

3 Exhibit RS-2 FPL's Flexibility to Incorporate Increased DSM and
4 Renewable Resources into Its Resource Plan

5

6

PURPOSE

7

8 **Q. What is the purpose of your testimony in this proceeding?**

9 A. The purpose of my testimony is to support FPL's request that the Florida
10 Public Service Commission (Commission) grant an affirmative determination
11 of need for the addition of FPL's proposed WCEC 3 in 2011, based on a
12 finding by the Commission that the addition of WCEC 3 in 2011 is the best,
13 most cost-effective alternative available as the first step in FPL's strategic
14 resource plan to meet the electricity needs of FPL's customers through 2017,
15 and to obtain Commission authorization for FPL to build the generating unit,
16 and place it in service in June 2011.

17 **Q. How is your testimony organized?**

18 A. My testimony consists of 6 sections. Section 1 outlines FPL's request for an
19 affirmative determination of need for WCEC 3. Section 2 introduces FPL's
20 witnesses. Section 3 discusses the self-build alternatives FPL considered as
21 part of its resource planning process and describes why FPL concluded that
22 the addition of WCEC 3 in 2011 is the best, most cost-effective self-build
23 alternative to meet FPL's need. Section 4 presents the results of the evaluation

1 of proposals received in response to FPL's Request for Proposals (RFP),
2 compared to FPL's WCEC 3, which culminated in FPL's selection of WCEC
3 3 in 2011 as the best, most cost-effective resource to meet our customers'
4 needs. Section 5 discusses the projected benefits associated with the possible
5 future conversion of existing conventional plants in 2013 and 2014 to new,
6 advanced, cleaner generating technology that will produce and deliver energy
7 much more efficiently, and explains why the addition of WCEC 3 in 2011 is
8 necessary to preserve this important option. Section 6 presents the significant
9 adverse consequences FPL and its customers would face if the determination
10 of need for WCEC 3 in 2011 is not granted.

11

12 **I. FPL's Request for an Affirmative Determination of Need**

13

14 **Q. Please explain the relief FPL seeks in this proceeding.**

15 A. FPL seeks from the Commission an affirmative determination of need for
16 WCEC 3, a combined cycle unit with a summer capacity rating of 1,219 MW
17 and a projected commercial operation date of June 1, 2011. WCEC 3 will be
18 the third unit at the West County Energy Center (WCEC), located in Palm
19 Beach County, Florida. The unit's primary fuel will be natural gas, and it will
20 have the capability to use light oil as backup fuel.

21

22 FPL's request for an affirmative determination of need is the culmination of
23 its extensive investigation and analyses designed to identify the best, most

1 cost-effective alternative available as the first step in FPL's strategy to meet
2 FPL's forecasted need for about 4,844 MW of new generating capacity
3 through 2017. That work included not only FPL's assessment of its
4 customers' capacity needs and analysis of various self-build options to select
5 the most cost-effective self-build option, but also the preparation and
6 management of an RFP for alternatives to FPL's self-build option, and the
7 evaluation of proposals submitted in response to the RFP.

8
9 The addition of WCEC 3 in 2011 is an integral part of FPL's strategy to meet
10 the growing resource needs of its customers and reduce the emission of carbon
11 dioxide (CO₂) and other substances through 2017 in the most cost-effective
12 manner and thereby continue to deliver electricity at a reasonable cost, while
13 complying with anticipated environmental requirements.

14 **Q. How much generating capacity will be needed to meet FPL customers'**
15 **needs in 2011 through 2017?**

16 A. Based on FPL's load forecast revised in 2008, FPL projects that between 2011
17 and 2017 FPL will have to add about 4,844 MW of new generation capacity,
18 equivalent to four generating units of the size of WCEC 3.

19 **Q. Why is FPL requesting to add WCEC 3 in June of 2011?**

20 A. Because the resource plan that includes the addition of WCEC 3 in June of
21 2011 will result in significantly greater benefits to FPL's customers than the
22 other seven resource plans that FPL has evaluated. These benefits fall in six
23 categories:

1 First, as shown in Exhibit SRS-14 attached the testimony of FPL witness Sim,
2 adding WCEC 3 in 2011 will result in customer savings of about \$460
3 million, cumulative present value of revenue requirements in 2008 dollars
4 (CPVRR) compared to adding a similar unit in 2013, and about \$137 million
5 (CPVRR) compared to adding WCEC 3 in 2012. In addition, the selected
6 resource plan that includes WCEC 3 in 2011 will result in customer savings of
7 between \$600 million and \$1 billion (CPVRR) compared to the five other
8 resource plans that include the proposals received in response to FPL's RFP.

9
10 Second, by adding the clean, highly efficient, gas burning WCEC 3 in 2011,
11 cumulative system air emissions will be reduced as follows: CO₂ by 2.2
12 million tons, sulfur dioxide (SO₂) by 6,500 tons, and nitrogen oxide (NO_x) by
13 10,750 tons, compared to delaying until 2013 the amount of new generation
14 capacity provided by WCEC 3. These emission reductions in 2011 through
15 2013 help offset, in part, the projected higher cost of air emissions in the
16 future.

17
18 Third, between June of 2011 and May of 2013, FPL's system average heat
19 rate, the measure of system fuel efficiency, will improve from 8,311 Btu/kWh
20 before the addition of WCEC 3, to 8,194 Btu/kWh, a 1.4% improvement,
21 because of the addition of WCEC 3 in 2011, compared to delaying the
22 generation capacity addition until 2013, thus reducing FPL's use of natural
23 gas by about 18 million MMBtu and fuel oil by about 1.2 million barrels

1 between June of 2011 and June of 2013. This fuel efficiency gain in 2011
2 through 2013 helps offset, in part, the effects of projected rising fuel prices in
3 the future.

4
5 Fourth, adding WCEC 3 in 2011 enables FPL and its customers to have far
6 less uncertainty regarding the actual cost of that generating unit than would be
7 the case if WCEC 3 were to be delayed, or if another similar generating unit
8 were to be built at another site at a later date. The economic analysis results of
9 WCEC 3 in 2011 reflect the fact that the costs of equipment, materials and
10 labor for the addition of WCEC 3 in 2011 are significantly lower than they
11 would be for a later addition at WCEC or elsewhere. But what is not reflected
12 in the results is the fact that the rate of escalation beyond 2011 for all of these
13 cost components is highly uncertain and may well be significantly higher than
14 currently projected. Therefore, the cost penalty to FPL's customers of
15 delaying the addition of WCEC 3 beyond 2011 could be significantly greater
16 than the \$137 million, or the \$460 million (CPVRR), referred to above.

17
18 Fifth, adding WCEC 3 in 2011 would create for FPL the option of converting
19 some of its existing conventional generating plants into new, advanced,
20 cleaner generation that will produce energy much more efficiently, by 2013
21 and 2014. The aim of this project is to transform more than 1,200 megawatts
22 (MW) of much less efficient oil and gas-fueled steam generation into more
23 than 2,400 MW of highly efficient, state-of-the-art, environmentally sensitive

1 advanced combined cycle units. FPL's preliminary analysis indicates that such
2 cleaner, high efficiency conversions would result in significant additional
3 savings to FPL's customers; above those that would result from the addition
4 of WCEC 3 in 2011, and that they would further improve system fuel
5 efficiency and reduce air emissions, including CO₂. However, as explained
6 later in my testimony, because converting existing conventional steam plants
7 would initially require removing more than 1,200 MW of capacity from FPL's
8 system beginning in 2011, adding WCEC 3 in 2011 would be necessary in
9 order for FPL to be able to accomplish these cleaner, high efficiency
10 conversions and still maintain system reliability in 2011 and 2012.

11

12 FPL has initiated an effort to thoroughly evaluate every aspect of this cleaner,
13 high efficiency conversion plan in order to confirm the magnitude of the
14 benefits that such conversions would provide to FPL's customers. Upon
15 completion of this evaluation, FPL will file with the Commission a request for
16 approval of the proposed conversion project.

17

18 Sixth, the addition of WCEC 3 will continue to mitigate what would
19 otherwise, in time, become a growing imbalance between the Southeast
20 Florida load and generation capacity in that region. As a result, this generation
21 addition will help reduce transmission-related costs.

1 The benefits of adding WCEC 3 in 2011 listed above are summarized in
2 Exhibit RS-1, attached to my testimony.

3 **Q. Do new DSM and renewable resources diminish the beneficial effects of**
4 **adding WCEC 3 in 2011?**

5 A. No. There is no currently identified additional cost-effective DSM not already
6 reflected in FPL's resource plan for the period through 2017. Therefore,
7 additional cost-effective DSM cannot be relied on to contribute to system
8 reliability, and there is no evidence to suggest that additional DSM could
9 provide economic benefits to FPL's customers that could in any way diminish
10 the unquestionable benefits provided by the addition of WCEC 3 in 2011.

11

12 Similarly, there are no significant cost-effective renewable resources
13 identified that could provide any significant amount of firm generating
14 capacity in the period through 2017. Therefore, renewable capacity cannot be
15 counted on to contribute to system reliability as does the addition of WCEC 3
16 in 2011. Furthermore, any future renewable resources that could cost-
17 effectively provide energy (~~but not~~ ^{whether or not they provide} firm capacity) would not compete with the
18 benefits described above that will be provided by the addition of WCEC 3 in
19 2011, but rather would complement those benefits.

20 **Q. Is FPL proposing the addition of WCEC 3 in 2011 in order to maintain a**
21 **20% reserve margin in that year?**

22 A. No, FPL's recommendation is based on the benefits described above. Taking
23 these benefits into consideration, FPL believes that its customers' interests are

1 best served by placing WCEC 3 in commercial operation in June of 2011. It is
2 also important to note that in the period 2011 through 2017 FPL will need to
3 add 4,844 MW of new generation capacity. WCEC 3 would provide 1,219
4 MW or about one fourth of that total, to meet its customers' demand for
5 electricity. Therefore, there is no question that WCEC 3 or equivalent
6 generating capacity will have to be added to FPL's system; rather, the
7 operative question concerns the identity and timing of the capacity addition
8 that would be most beneficial to FPL's customers. For the reasons I discuss in
9 my testimony, FPL believes that the addition of WCEC 3 in 2011 is the right
10 choice for our customers.

11

12 FPL evaluated other resource plans that would add capacity in 2012 or 2013,
13 as alternatives to adding WCEC 3 in 2011. But, as noted above, FPL's
14 comparative analysis clearly shows that the addition of WCEC 3 in 2011, as
15 proposed in this proceeding, would provide far greater benefits to its
16 customers than any other alternative.

17

18 In summary, without the addition of WCEC 3 in 2011, FPL's customers
19 would be served by a less efficient, more costly and less environmentally
20 sensitive system. Also, without the addition of WCEC 3 in 2011 FPL would
21 not have the option to proceed with cleaner, high efficiency conversions of
22 existing plants. These factors lead to the conclusion that the addition of

1 WCEC 3 in 2011 is needed to provide adequate electricity at a reasonable cost
2 to FPL's customers.

3 **Q. Does the 2008 load forecast used by FPL in this proceeding include the**
4 **Lee County load?**

5 A. Yes. As explained by FPL witness Morley, about 200 MW of Lee County
6 load is included in 2010 through 2013. The full Lee County load is included
7 beginning in 2014.

8 **Q. How will the addition of the Lee County load affect the timing of FPL's**
9 **resource needs?**

10 A. The addition of the Lee County load does not affect the timing of FPL's
11 resource needs until 2014. This is because in 2010 through 2013 FPL's
12 incremental capacity commitment related to the Lee County load adds only
13 about 200 MW to FPL's peak load, which can be met with the new resource
14 additions that have already been approved by the Commission and have been
15 reflected in FPL's resource plan. Consequently, this Lee County load addition
16 does not require any adjustment in FPL's resource plan until 2014.

17 **Q. Does FPL's recommendation to add WCEC 3 in 2011 depend on the**
18 **addition of the Lee County load?**

19 A. No. Adding WCEC 3 in 2011 will still provide the significant benefits listed
20 above, regardless of the Lee County load addition. The precise amounts of
21 savings to customers, emission reductions, efficiency gain, and oil and gas
22 use reductions would be slightly different if FPL were not serving the Lee
23 County load, but these benefits would still be equally compelling. The

1 addition of WCEC 3 in 2011 would also still be needed in order to preserve
2 the option to implement the cleaner, high efficiency conversion of existing
3 conventional FPL plants by 2013 and 2014. Therefore, FPL would be
4 requesting from the Commission an affirmative determination of need for
5 WCEC 3 in 2011 even without the Lee County load.

6 **Q. Is it reasonable to reflect the Lee County load in FPL's resource planning**
7 **process?**

8 A. Yes. FPL has entered into an obligation to serve the Lee County load and,
9 subject only to regulatory approval, the Company is committed to meet that
10 future need. Therefore, FPL has reflected the Lee County load in its resource
11 planning process, especially because of the very long lead time required to
12 complete the process from identifying a future capacity need to cost-
13 effectively placing new generation capacity in service to meet that need.

14 **Q. What would FPL's cumulative projected resource need through 2017**
15 **have been absent the Lee County load?**

16 A. Without the Lee County load, in the period through 2017 FPL would still need
17 to add 3,665 MW of new generation capacity instead of the 4,844 MW
18 reported above. Therefore, WCEC 3 would be needed to provide about one
19 third of the total new generation capacity requirement to meet its customers'
20 demand for electricity through 2017 even in this reduced load situation. More
21 importantly, the addition of WCEC 3 in 2011 would still be needed to provide
22 the many significant customer benefits described above.

1 **Q. Is the addition of WCEC 3 in 2011 the most cost-effective alternative to**
2 **meet FPL's customers' needs for new resources?**

3 A. Yes. As explained in FPL witness Sim's testimony, the addition of WCEC 3
4 in 2011 is the best, most cost-effective option available to meet the needs of
5 FPL's customers. WCEC 3 was selected as FPL's next planned generating
6 unit (NPGU) to meet FPL's needs beginning in 2011 because it was
7 determined to be the best, most cost-effective alternative from among all the
8 self-build options identified and evaluated by FPL. As explained by FPL
9 witness Sim, of all the self-build alternatives available to FPL, the two with
10 costs that were closest to WCEC 3 in 2011 were WCEC 3 in 2012 and a
11 similar unit added in 2013. FPL's analysis determined that delaying WCEC 3
12 to 2012 would needlessly increase the cost of electricity to customers by \$137
13 million (CPVRR), while delaying the addition of a similar unit further to 2013
14 would increase customers' costs by \$460 million (CPVRR).

15

16 The addition of WCEC 3 in 2011 was also evaluated against five other
17 alternative portfolios which were constructed using the proposals received in
18 response to FPL's RFP. All of these alternative portfolios were much more
19 costly than the addition of WCEC 3 in 2011. As FPL witness Sim explains in
20 his testimony, the alternative portfolio with the lowest cost was more than
21 \$600 million (CPVRR) more costly to FPL's customers than the addition of
22 WCEC 3 in 2011. This conclusion was confirmed by FPL witness Alan
23 Taylor of Sedway Consulting, the Independent Evaluator, whose analysis also

1 determined that among the alternative portfolios that included the proposals,
2 the one with the lowest cost would be more than \$530 million (CPVRR) more
3 costly than adding WCEC 3 in 2011.

4

5 Furthermore, none of the alternative portfolios offered any non-economic
6 advantages over WCEC 3. Therefore, FPL has established that the addition of
7 WCEC 3 in 2011 is by far the best, most cost-effective alternative to meet
8 FPL customers' needs for additional resources.

9

10 II. Introduction of FPL Witnesses

11

12 **Q. How many witnesses are supporting FPL's petition through direct pre-**
13 **filed testimony?**

14 A. Six other witnesses are submitting direct testimony.

15 **Q. Please summarize the topics addressed in the testimony of each of these**
16 **witnesses.**

17 A. FPL witness Dr. Rosemary Morley presents FPL's load forecasting process,
18 discusses the methodologies and assumptions used in that process, and
19 presents FPL's resulting load forecasts, which have been used in FPL's IRP
20 process, and were used in analyses performed related to the addition of
21 WCEC 3. She also discusses the effect of the Lee County load on retail
22 customers.

1 FPL witness Dr. Steven R. Sim describes FPL's IRP process, presents the
2 need for new resources to meet customers' demand for electricity in 2008
3 through 2017, concludes that DSM alone cannot meet this need and explains
4 the analyses FPL performed to evaluate the addition of WCEC 3 in 2011
5 compared to other self-build alternatives. FPL witness Sim also outlines
6 FPL's RFP process and describes the analyses performed to evaluate
7 proposals submitted in response to the RFP. FPL witness Sim presents the
8 results of FPL's analyses, and explains his conclusion that based on FPL's
9 evaluation, adding WCEC 3 in 2011 is the best choice for FPL's customers.

10

11 FPL witness Alan Taylor of Sedway Consulting describes his role as an
12 Independent Evaluator of FPL's proposed WCEC 3 and of the generating
13 capacity proposals received by FPL in response to its RFP, describes the
14 process he followed and the tools he used to conduct his economic evaluation,
15 presents the results of that evaluation, and explains his conclusion that the
16 addition of WCEC 3 constitutes the most cost-effective alternative to meet
17 FPL's resource need.

18

19 FPL witness Heather Stubblefield describes the transportation plan to deliver
20 natural gas and light oil to WCEC 3 and testifies to the ready availability of
21 natural gas for that plant, as part of FPL's overall system. FPL witness
22 Stubblefield also supports the fuel price forecast used in FPL's economic
23 analysis of WCEC 3 and the available generation alternatives.

1 FPL witness Kennard Kosky presents the environmental compliance cost
2 forecast for SO₂, NO_x, mercury (Hg), and CO₂ utilized by FPL in its analysis
3 of WCEC 3 and available generation alternatives. In addition, FPL witness
4 Kosky discusses the magnitude of future reductions in emissions that will be
5 realized through the addition of WCEC 3 in 2011.

6
7 FPL witness John Gnecco presents the engineering details of FPL's proposed
8 WCEC 3, which involves the construction of a new state-of-the-art 3x1
9 combined cycle (CC) unit. Included in FPL witness Gnecco's testimony are
10 the cost and performance specifications of this unit, which are reflected in
11 FPL's economic analyses, including the RFP analysis. FPL witness Gnecco
12 also describes why, from the perspective of permitting, project management,
13 equipment procurement and construction, proceeding to add WCEC 3
14 immediately so that it can be placed in service in June 2011 is clearly in the
15 best interest of FPL's customers.

16
17 **III. Selection of WCEC 3 in 2011 as Best, Most Cost-Effective Alternative**

18
19 **Q. Please outline how FPL determined its generation capacity needs through**
20 **2017 as part of its IRP process.**

21 **A.** As explained by FPL witness Morley, in early 2008 FPL reviewed and revised
22 its peak electricity demand forecast to reflect recent growth trends. FPL's
23 current peak demand forecast was used in its generation reliability assessment

1 using the two reliability criteria previously approved by the Commission. One
2 criterion consists of maintaining a 20% reserve margin; the other criterion
3 consists of demonstrating that the Loss of Load Probability (LOLP) in FPL's
4 system will remain lower than 0.1 days per year during the planning period.
5 FPL witness Sim discusses the reliability criteria.

6 **Q. What was the result of FPL's generation reliability assessment in 2008?**

7 A. FPL's reliability assessment completed in early 2008 determined that, due to
8 load growth and the expiration of power purchases FPL's total resource need
9 in 2011 through 2017 is 6,490 MW. After considering all cost-effective DSM
10 increases in this period, all projected cost-effective renewable resources, and
11 the uprates to FPL's existing nuclear units already approved by the
12 Commission, FPL will still need to add 4,844 MW of new generation capacity
13 in this period, as stated above, in order to continue to meet its 20% reserve
14 margin. FPL also determined that adding the new generating capacity required
15 to meet the 20% reserve margin criterion as specified above would enhance
16 and further ensure FPL's ability to meet the 0.1 days per year LOLP criterion
17 during that period.

18 **Q. What amount of cost-effective DSM is available during FPL's planning**
19 **period?**

20 A. As can be determined from column 5 in Exhibit SRS-1 attached to FPL
21 witness Sim's testimony, FPL projects that it will add about 884 MW
22 (summer MW at the generator) of new DSM in the years 2011 through 2017,
23 sufficient to avoid about 1,061 MW of new generating capacity in that

1 planning period. However, this increase in DSM has already been reflected in
2 the calculation FPL has performed, which identified a need for 4,844 MW of
3 new generation capacity in 2011 through 2017, above the 1,061 MW avoided
4 by new DSM, as well as renewable purchases and the nuclear uprates. It is
5 important to note from these figures that without DSM FPL's total generation
6 capacity need in this period would be 5,905 MW, and that the 1,061 MW
7 avoided through DSM additions cover almost 18% of that total capacity need.

8
9 It is also important to note that, as indicated by FPL witness Sim, through
10 2007 FPL and its customers have avoided the need for 4,753 MW of
11 generation capacity as a result of cost-effective DSM programs, and that in
12 2008 through 2010 DSM increases will be sufficient to avoid another 454
13 MW of generating capacity. Added to the 1,061 MW of capacity that will be
14 avoided by DSM additions in 2011 through 2017, FPL and its customers will
15 have avoided a total of 6,268 MW of generating capacity by 2017 as a result
16 of DSM programs, equal to 21% of the projected amount of FPL-owned
17 generating capacity (29,878 MW) in operation by 2017.

18 **Q. Is there DSM adequate to avoid or significantly mitigate the need for**
19 **WCEC 3?**

20 A. No. At present FPL has not identified any additional cost-effective DSM
21 beyond that already reflected in the need calculations. Therefore, considering
22 the need for resources through 2017, DSM is not available to avoid or
23 indefinitely defer the need for WCEC 3. In fact, even after the addition of all

1 the currently projected DSM increases reflected in FPL's resource plan, and
2 after adding WCEC 3 in 2011, FPL would still need to add about 3,625 MW
3 of new generating capacity by 2017.

4
5 As FPL witness Sim discusses in his testimony, FPL will continue to evaluate
6 DSM opportunities as part of its planning process, and as part of the
7 Commission's upcoming DSM Goals proceeding, and to the extent that FPL
8 were to identify and implement additional cost-effective DSM opportunities in
9 the future, such additional DSM would help reduce part of the 3,625 MW of
10 currently projected generation capacity need through 2017 that remains after
11 the addition of WCEC 3 in 2011. This remaining projected need of 3,625
12 MW, which is shown on Exhibit RS-2 as being met by "Natural Gas and/or
13 Other Resources," is determined by subtracting the capacity provided by
14 WCEC 3 (1,219 MW) from the total need for new generating capacity (4,844
15 MW).

16 **Q. What amount of cost-effective generation capacity from renewable**
17 **resources is available during FPL's planning period?**

18 A. FPL's resource plan already includes all the existing firm renewable
19 generating capacity that FPL is currently purchasing, including about 143
20 MW from contracts that expire by 2012, which FPL will try to renew. FPL's
21 resource plan also reflects 126 MW of new capacity from renewable resources
22 based on what FPL believes is a reasonable estimate of cost-effective
23 proposals for renewable generating capacity it will receive by June 2008 in

1 response to FPL's new, April 2008 request for proposals for renewable
2 generation and FPL's own renewable development efforts. At present FPL has
3 not been able to identify any other cost-effective sources of firm renewable
4 generating capacity.

5 **Q. Is there adequate firm generating capacity from renewable resources to**
6 **avoid or significantly mitigate the need for WCEC 3?**

7 A. No. As explained above, all of the existing and new potential cost-effective
8 firm generating capacity from renewable resources during the planning period
9 has already been reflected in FPL's resource plan. Therefore, neither the need
10 for, nor the benefits provided by, WCEC 3 in 2011 are diminished by DSM or
11 renewable resources.

12 **Q. How did FPL select the addition of WCEC 3 in 2011 as FPL's most cost-**
13 **effective alternative to meet the initial portion of FPL's need in 2011**
14 **through 2017?**

15 A. FPL compared adding WCEC 3 in 2011 to delaying until 2012 the addition of
16 WCEC 3, as well as to adding an equivalent combined cycle unit at a different
17 location in 2012 and in 2013. As explained by FPL witness Sim, FPL also
18 compared the addition of WCEC 3 in 2011 to adding generation of a different
19 size at WCEC in 2012. As explained by FPL witness Sim, all the analyses
20 FPL performed confirmed that adding WCEC 3 in 2011 is the best alternative
21 for FPL's customers.

1 **Q. What resource plans were used by FPL in the economic analysis of**
2 **WCEC 3 and other self-build alternatives, using FPL's 2008 load**
3 **forecast?**

4 A. The resource plans FPL utilized are presented in Exhibit SRS-9 attached to
5 FPL witness Sim's testimony. For the period 2011 through 2017, FPL's basic
6 resource plan consists of the following: 1,061 MW of avoided capacity due to
7 884 MW of new DSM in 2011 through 2017; the approved uprates at existing
8 nuclear units that add 414 MW; extension of all existing renewable power
9 purchases, including one for 45 MW that expires in 2011, plus assumed new
10 renewable capacity totaling 126 MW; and four gas-fueled baseload combined
11 cycle units that add 4,876 MW (one of which is the proposed WCEC 3 in
12 2011). In the aggregate, this resource plan adds 6,522 MW of total net
13 resources to meet a projected need of 6,490 MW of resources in 2011 through
14 2017. The alternative self-build resource plans differed only in terms of the
15 location and timing of the first new combined cycle unit addition, compared to
16 adding WCEC 3 in 2011.

17 **Q. Is it possible that the other resource additions, after 2011, reflected in**
18 **these resource plans would change in the future?**

19 A. Yes. A utility's resource plan is not, and cannot be, static. As indicated earlier
20 in my testimony, FPL is considering converting one or more of its existing
21 conventional plants to new, cleaner, highly efficient advanced generation. In
22 addition, FPL is evaluating self-build renewable resource opportunities,
23 pursuing additional renewable purchases and continuing to evaluate cost-

1 effective DSM opportunities. The outcome of these efforts could well change
2 FPL's resource plan beyond 2011.

3
4 However, the objective of the generation additions reflected in the resource
5 plans presented by FPL witness Sim is to provide a reasonable, neutral
6 backdrop against which the proposed addition of WCEC 3 in 2011 can be
7 fairly compared to other self-build available generation capacity alternatives
8 that FPL could use in place of WCEC 3 in 2011 as the initial step in its
9 strategy to meet its capacity needs through 2017. At this time, FPL is not
10 committed to pursuing any of the three additional gas-fueled combined cycle
11 units that would be added, according to the resource plan, after WCEC 3
12 between 2014 and 2017.

13
14 Therefore, as the projected need for new resources in the future changes, and
15 as other resource alternatives such as additional cost-effective DSM, or
16 additional renewable resources (purchased or self-build), or the cleaner, high
17 efficiency conversion of existing generating plants, or other alternatives
18 become available, and as factors that affect some or all of the resource
19 alternatives change, FPL's resource plan would be modified. Nevertheless,
20 the resource plans utilized in FPL's analyses reflect reasonable choices for
21 meeting FPL's needs through 2017, based on what is known today. In
22 summary, they provide appropriate frames of reference within which to assess
23 the customer benefit of adding WCEC 3 in 2011.

1 **Q. How did the addition of WCEC 3 compare with the other self-build**
2 **alternatives?**

3 A. FPL determined that adding WCEC 3 in 2011 would result in the most cost-
4 effective resource plan. Specifically, adding WCEC 3 in 2011 results in
5 savings of \$137 million (CPVRR) compared to delaying WCEC 3 to 2012,
6 and \$460 million (CPVRR) compared to delaying a similar new unit to 2013.
7 FPL witness Sim's testimony discusses these evaluations in detail. He also
8 describes the earlier analyses FPL performed to compare WCEC 3 in 2011 to
9 other self-build alternatives that differed in size, timing and location using
10 FPL's previous load forecast. The results of those earlier analyses indicated
11 that adding WCEC 3 in 2011 would be \$148 million (CPVRR) less costly
12 than delaying WCEC 3 to 2012, and \$432 million (CPVRR) less costly than
13 adding a 2x1 CC unit at WCEC in 2012 instead of WCEC 3 in 2011. These
14 results, which are presented in FPL witness Sim's testimony, demonstrate that
15 the addition of WCEC 3 in 2011 is the best, most cost-effective self-build
16 alternative, as the initial step in FPL's strategy to meet FPL's resource need
17 through 2017, under both the 2008 FPL load forecast and FPL's previous load
18 forecast.

19

20 **IV. Evaluation of Proposals Received in Response to FPL's RFP**

21

22 **Q. How many alternate resource plans did FPL develop utilizing proposals**
23 **received in response to its RFP?**

1 A. FPL developed five alternate resource plans utilizing the three proposals
2 submitted in response to FPL's RFP. Two of the proposals were mutually
3 exclusive, so only five combinations could be constructed from the three
4 proposals. These five resource plans are described in FPL witness Sim's
5 testimony and presented in Exhibit SRS-9, attached to FPL witness Sim's
6 testimony.

7 **Q. How did these alternate resource plans utilizing the RFP proposals**
8 **compare to the resource plan with WCEC 3 in 2011?**

9 A. As shown on Exhibit SRS-14, attached to FPL witness Sim's testimony, of the
10 resource plans with the RFP proposals (Resource Plans 2 through 6), the best
11 (Resource Plan 2) was more than \$600 million (CPVRR) more costly than the
12 resource plan with WCEC 3 in 2011 (Resource Plan 1); the worst resource
13 plan was about \$1 billion more costly than the resource plan with WCEC 3 in
14 2011. Therefore, the addition of WCEC 3 in 2011 results in a far more
15 economic resource plan than can be achieved with the proposals submitted in
16 response to FPL's RFP.

17 **Q. Did the proposals submitted in response to FPL's RFP provide any non-**
18 **economic advantage compared to the addition of WCEC 3 in 2011?**

19 A. No. As stated earlier in this testimony, adding WCEC 3 in 2011 results in
20 improved system fuel efficiency, reduced emissions and reduced oil and gas
21 use. The generating units proposed in response to FPL's RFP do not provide
22 comparable benefits. In addition, as FPL witness Sim states, the non-
23 economic portion of the proposal evaluation raised questions that would have

1 required further technical information and explanations on the part of the
2 bidders and further evaluation by FPL. Similarly, the non-economic
3 evaluation determined that the type and extent of exceptions taken to FPL's
4 draft contract language suggested that significant work would be required to
5 reconcile apparent differences between the bidders and FPL before a contract
6 that effectively protected FPL's customers could be negotiated. In addition, as
7 submitted, all three proposals violated one or more of the minimum
8 requirements specified in the RFP to protect FPL and its customers. Resolving
9 these violations of the minimum requirements would have required changes to
10 the proposals. Because the proposals were clearly not cost-competitive, by a
11 very wide margin, it was not necessary to pursue any of these concerns.
12 However, the fact that these concerns did exist serve to reinforce the
13 conclusion that the proposals did not provide any non-economic advantage
14 that could mitigate their sizable economic disadvantage compared to adding
15 WCEC 3 in 2011.

16

17 **V. Benefits of Cleaner, High Efficiency Conversion of Existing Plants**

18

19 **Q. What does the contemplated cleaner, high efficiency conversion of**
20 **existing FPL plants involve?**

21 A. In effect, the conversion of existing conventional plants to cleaner, high
22 efficiency generation consists of replacing the selected existing steam plants,
23 which generally have heat rates of approximately 10,000 Btu/kWh, with one

1 or more new 3x1 G state-of-the-art advanced combined cycle units with a net
2 summer peak rating of 1,219 MW and a base operating heat rate of 6,582
3 Btu/kWh. These new combined cycle units would use natural gas as the
4 primary fuel, and would be capable of using light fuel oil as backup fuel. The
5 net peak capacity increase after the conversion of two or more existing plants
6 could be about 1,200 MW, but there would be no increase in steam
7 generation. This total net system capacity increase (compared to system
8 capacity before the existing plants are removed from service) would be
9 comparable to that provided by a new 3x1 G combined cycle unit. The
10 cleaner, high efficiency conversion plan currently contemplated by FPL would
11 remove existing plants from service beginning in 2010 or early 2011. The new
12 converted plants would return to service between June of 2013, and June of
13 2014, consistent with FPL's projected resource need in those years.

14 **Q. What advantages does the cleaner, high efficiency conversion of existing**
15 **FPL plants provide, compared to adding a new generating unit to FPL's**
16 **system as needed, without making any changes to the existing generation**
17 **portfolio?**

18 A. The principal advantage of FPL's currently contemplated generation
19 conversion plan is that, in addition to providing as much net new capacity as
20 would be obtained from adding a new advanced combined cycle unit, these
21 cleaner, high efficiency conversions also transform existing, low efficiency
22 steam generation into highly efficient, low emission, gas-fueled, advanced
23 combined cycle generation. In effect, these conversions would result in

1 replacing about 1,200 MW of inefficient steam generation with 2,400 MW of
2 highly efficient combined cycle generation.

3

4 As a result, this cleaner, high efficiency conversion plan would result in
5 system fuel cost savings, reduced system emissions of CO₂, SO₂ and NO_x, and
6 reduced system fuel use.

7 **Q. Has FPL quantified the magnitude of these advantages as they affect its**
8 **customers?**

9 A. Yes. FPL has developed preliminary results that quantify the customer
10 benefits of its conversion plan by comparing the economics and emissions of
11 this conversion plan to those of a resource plan that does not include cleaner,
12 high efficiency conversions. These preliminary results indicate that the
13 conversion plan would result in total savings of more than \$200 million
14 (CPVRR) compared to the “no conversions” plan. These cost benefits would
15 be incremental to the benefits realized through the addition of WCEC 3 in
16 2011.

17

18 In addition, the conversion plan currently contemplated could reduce FPL’s
19 system CO₂ emissions in 2017 by as much as 900,000 tons compared to the
20 “no conversions” plan. As a result, this cleaner, high efficiency conversion
21 plan could enable FPL to achieve in 2017 the level of FPL system CO₂
22 emissions in 2000, consistent with the 2017 CO₂ emissions target proposed in
23 July 2007 as part of the Governor’s Executive Order 07-127.

1 **Q. Has FPL made a final decision to proceed with this conversion plan?**

2 A. No. The results developed to date are preliminary. FPL is completing its
3 detailed evaluation of all aspects of this cleaner, high efficiency conversion
4 plan in order to ensure that this plan would be beneficial to its customers
5 before it makes a final decision to proceed. FPL anticipates that this effort will
6 be completed in time for FPL to make a decision by May of 2008. However, it
7 is clear that FPL would not be able to implement the conversion of existing
8 units in 2013 and 2014 unless it adds WCEC 3 in 2011.

9 **Q. Why is adding WCEC 3 in 2011 necessary for FPL to proceed with the
10 conversion of existing plants in 2013 and 2014?**

11 A. In order to do the work required to convert existing steam plants to new,
12 cleaner, highly efficient generation, it will be necessary to remove from
13 service generation capacity – possibly more than 1,200 MW - at the selected
14 existing plant sites by 2011. Removing from service this quantity of
15 generating capacity in 2011 would reduce FPL's reserve margin to less than
16 16%, well below the 20% reserve margin level that the Commission and FPL
17 agree is necessary to ensure reliable service. Adding the 1,219 MW of WCEC
18 3 in June of 2011 would offset the loss of generating capacity from the
19 existing plants being removed from service and would restore the reserve
20 margin to just above 20%. Without WCEC 3, FPL would have to obtain some
21 other capacity alternative to maintain system reliability if it were to proceed
22 with the cleaner, high efficiency conversion of existing plants. However, as I
23 have explained, because adding WCEC 3 is the most economic resource

1 available to FPL, it would not be beneficial to FPL's customers to implement
2 any of the other alternatives. Therefore, adding WCEC 3 in 2011 is necessary
3 and appropriate if FPL is to proceed with the cleaner, high efficiency
4 conversion plan.

5

6 **VI. Adverse Consequences of Denying a Determination of Need for**
7 **WCEC 3 in 2011**

8

9 **Q. Would there be any adverse consequences to FPL and its customers if the**
10 **Commission were not to grant an affirmative determination of need for**
11 **WCEC 3 in 2011 in this proceeding?**

12 A. Yes. If a determination of need for WCEC 3 in 2011 were not granted in this
13 proceeding, FPL's customers will face significant adverse consequences
14 related to the cost of electricity, air emissions and other factors.

15 **Q. Please describe the adverse consequences of denying a need**
16 **determination for WCEC 3 in 2011 and, for example, deferring**
17 **construction until 2013.**

18 A. FPL's analysis shows that delaying the addition of the 1,219 MW of capacity
19 provided by WCEC 3 until 2013 will result in much higher costs to FPL's
20 customers. FPL has estimated the incremental cost to be \$460 million
21 (CPVRR). However, because the cost uncertainty of capacity additions
22 increases with time, the actual cost of a 2013 capacity addition could be
23 significantly greater than has been estimated, and the cost penalty to FPL's

1 customers due to delaying WCEC 3 could therefore be significantly higher
2 than \$460 million (CPVRR).

3
4 Delaying WCEC 3 to 2013 will also result in higher emissions of CO₂ (2.2
5 million tons), SO₂ (6,500 tons), and NO_x (10,750 tons), as well as lower fuel
6 efficiency and consequently increased use of fuel oil (2.1 million barrels) and
7 natural gas (18 million MMBtu) during that two-year period.

8
9 In addition, not granting the need determination for WCEC 3 in 2011 would
10 indefinitely defer the opportunity to effect the cleaner, high efficiency
11 conversion of any of FPL's existing plants because without WCEC 3 in
12 service by 2011 FPL cannot remove existing plants from service to effect the
13 conversion. This would result in FPL forgoing a very significant opportunity
14 to provide additional benefits to its customers in 2013 and 2014. In summary,
15 it is clear that FPL's customers would not benefit from a rejection of FPL's
16 petition for a determination of need for WCEC 3 in 2011.

17

18

CONCLUSION

19

20 **Q. Please summarize your testimony.**

21 A. The addition of WCEC 3 in 2011 will be the most beneficial choice among the
22 many alternatives that FPL has considered. FPL first considered DSM and
23 renewable resources. FPL has already included in its resource plan all the

1 cost-effective DSM additions that have been identified. There is no additional
2 cost-effective DSM that could diminish the significant benefits to FPL's
3 customers of adding WCEC 3 in 2011.

4
5 Similarly, FPL has already included in its resource plan all the potential cost-
6 effective renewable firm capacity that has been identified through
7 communications with existing suppliers, issuing a request for proposals for
8 renewable generation, and other contacts with potential suppliers. There is no
9 additional cost-effective firm renewable capacity that could affect the benefits
10 of adding WCEC 3 in 2011. Furthermore, FPL will continue to pursue
11 additional cost-effective DSM and renewable resources, both purchased and
12 self-built, and to the extent that such additional resources become available
13 and/or are developed, FPL can and will effectively integrate them into its
14 resource plan. However, the benefit of adding WCEC 3 in 2011 will not be
15 diminished.

16
17 FPL also considered many other alternatives, including delaying the FPL self-
18 build capacity addition to 2012 or 2013, siting the capacity addition at a
19 different location and adding a smaller generating unit. FPL also issued an
20 RFP to solicit proposals that would compete with WCEC 3 in 2011. FPL's
21 analysis results show that the addition of WCEC 3 in 2011 is, by far, the most
22 cost-effective self-build alternative available to FPL and its customers, and
23 that it is more than \$600 million (CPVRR) less costly than the best among the

1 proposals submitted in response to FPL's RFP. Further, adding WCEC 3 in
2 2011 results in reduced emissions of CO₂, SO₂ and NO_x, and reduced use of
3 oil and natural gas.

4
5 In addition, adding WCEC 3 in 2011 provides a significant strategic benefit in
6 that it would make it possible for FPL, subject to verification of the benefits of
7 the cleaner, high efficiency conversion plan, to complete in 2013 and 2014 the
8 conversion of one or more existing conventional plants to new, cleaner, highly
9 efficient generation. This cleaner, high efficiency conversion plan is projected
10 to add significant economic and environmental benefits to FPL's customers,
11 beyond those provided by the addition of WCEC 3 in 2011.

12
13 Because of these significant benefits, the Commission should grant an
14 affirmative determination of need for the addition of WCEC 3 in 2011.

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

16 **A. Yes.**

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Florida Power & Light Company's Petition to determine need for West County Energy Center Unit 3 electrical power plant.	DOCKET NO. 080203-EI
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In re: Florida Power & Light Company's Petition for determination of need for conversion of Riviera Plant in Palm Beach County.	DOCKET NO. 080245-EI
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In re: Florida Power & Light Company's Petition for determination of need for conversion of Cape Canaveral Plant in Brevard County.	DOCKET NO. 080246-EI
	Filed: June 19, 2008

ERRATA SHEET

DIRECT TESTIMONY OF RENE SILVA; DOCKET 080203-EI

<u>PAGE #</u>	<u>LINE #</u>	<u>CORRECTION</u>
6	23	Change "1.2" to "2.1" million barrels
11	19	Delete "still"
11	23	Delete "still"
23	2	Bold "Evaluation"
28	15	Delete "less than" and insert "about"
Exhibit RS-1	5 th bullet	Change "1.2" to "2.1" million barrels

1 **BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION**

2 **FLORIDA POWER & LIGHT COMPANY**

3 **DIRECT TESTIMONY OF RENE SILVA**

4 **DOCKET NO. 08_____ -EI**

5 **APRIL 30, 2008**

6

7 **INTRODUCTION AND CREDENTIALS**

8

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

10 A. My name is Rene Silva. My business address is 9250 West Flagler Street,
11 Miami, Florida 33174.

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

13 A. I am employed by Florida Power & Light Company (FPL or the Company) as
14 Senior Director, Resource Assessment and Planning (RAP).

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

16 A. I manage the RAP group, the department that is responsible for developing
17 FPL's integrated resource plan (IRP) and other related activities, such as
18 developing system production cost projections for various generation capacity
19 alternatives, analyzing demand side management (DSM) programs, and
20 negotiating and administering wholesale power purchase agreements (PPAs).

21 **Q. Please describe your educational background business experience.**

22 A. I graduated from the University of Michigan with a Bachelor of Science
23 Degree in Engineering Science in 1974. From 1974 until 1978, I was

1 employed by the Nuclear Energy Division of the General Electric Company in
2 the area of nuclear fuel design. While employed by General Electric, I earned
3 a Masters Degree in Mechanical Engineering from San Jose State University
4 in 1978.

5
6 I joined the Fuel Resources Department of FPL in 1978, as a fuel engineer,
7 responsible for purchasing nuclear fuel. While employed by FPL, I earned a
8 Masters Degree in Business Administration from the University of Miami in
9 1986. In 1987 I became Manager of Fossil Fuel, responsible for FPL's
10 purchases of fuel oil, natural gas and coal. In 1990, I assumed the position of
11 Director, Fuel Resources Department, and in 1991 became Manager of Fuel
12 Services, responsible for coordinating the development and implementation of
13 FPL's fossil fuel procurement strategy. In 1998, I was named Manager of
14 Business Services in the Power Generation Division (PGD). In that capacity,
15 I managed the group that is responsible for coordinating (a) the development
16 of PGD's long-term plan for the effective and efficient construction, operation
17 and maintenance of FPL's fossil generating plants, (b) the preparation of PGD
18 annual budgets and tracking of expenditures, and (c) the preparation of reports
19 related to fossil generating plant performance. On May 1, 2002, I was
20 appointed to my current position.

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

22 A. Yes. I am sponsoring Exhibits RS-1 through RS-4, which are attached to my
23 direct testimony.

1 Exhibit RS-1 Summary of Benefits of Conversion of FPL's Cape
2 Canaveral Plant and Riviera Plant
3 Exhibit RS-2 FPL's Flexibility to Incorporate Increased DSM and
4 Renewable Resources into Its Resource Plan
5 Exhibit RS-3 Calculation of Reserve Margin in 2014
6 Exhibit RS-4 Example Showing why a 15% Reserve Margin
7 Reliability Criterion Is Inadequate to Ensure
8 Reliable Service

9

10 **PURPOSE**

11

12 **Q. What is the purpose of your testimony in this proceeding?**

13 The purpose of my testimony is to support FPL's request that the Florida
14 Public Service Commission (Commission):

15 (1) Grant affirmative determinations of need for (a) the conversion of FPL's
16 Cape Canaveral Plant (Canaveral) to an advanced combined cycle unit located
17 at the same Canaveral site, to be renamed Cape Canaveral Energy Center
18 (CCEC), with a nominal summer peak capability of 1,219 megawatts (MW)
19 and a targeted completion date of June 2013, and (b) the conversion of FPL's
20 Riviera Plant (Riviera) to an advanced combined cycle unit located at the
21 same Riviera site, to be renamed Riviera Beach Energy Center (RBEC), with
22 a nominal summer peak capability of 1,207 MW and a targeted completion
23 date of June 2014; and

1 (2) Grant FPL's requests for exemption from the Commission's Bid Rule, as
2 they pertain to the requests for determinations of need for the conversions of
3 Canaveral and Riviera.

4 **Q. Although you have analyzed and presented the proposed plant**
5 **conversions of Canaveral and Riviera together as a resource option,**
6 **would either project be worth pursuing on its own merits?**

7 A. Yes. As discussed throughout FPL's filing, these conversion projects
8 combined will produce enormous customer benefits in the form of hundreds
9 of millions of dollars in savings and millions of tons in reduced carbon
10 dioxide (CO₂) emissions, as well as significant reductions in other emissions.
11 But either of these plant conversions on its own provides significant benefits
12 compared to a "no conversion" plan, independent of the other plant
13 conversion and thus could, and does, stand on its own merits. Each
14 conversion, of course, will need separate Site Certification Approval. For that
15 reason, it is important that the Commission grant affirmative determinations
16 of need for the conversions of Canaveral and Riviera that are separate and
17 independent of one another.

18 **Q. What do the proposed conversions of Canaveral and Riviera involve?**

19 A. The proposed conversions consist of removing from service the existing 792
20 MW (summer rating) of generating capacity at Canaveral and replacing it with
21 a 1,219 MW (nominal summer rating) 3x1 G combined cycle unit at the same
22 CCEC site by June of 2013, and similarly removing from service the existing
23 565 MW (summer rating) of generating capacity at Riviera and replacing it

1 with another 1,207 MW (nominal summer rating) 3x1 G combined cycle unit
2 at the same RBEC site by June of 2014.

3

4 Converting the existing Canaveral and Riviera steam generating plants into
5 new, advanced, cleaner generation will produce energy much more efficiently
6 beginning by 2013 and 2014. These conversions will transform 1,357 MW of
7 much less efficient oil and gas-fueled steam generation into more than 2,400
8 MW of highly efficient, state-of-the-art, environmentally sensitive advanced
9 combined cycle units.

10 **Q. How is your testimony organized?**

11 A. My testimony consists of 6 sections. Section 1 outlines FPL's request before
12 the Commission regarding each of the proposed plant conversions. Section 2
13 introduces FPL's witnesses. Section 3 describes the resource plans used by
14 FPL in the analysis related to the conversion of Canaveral and Riviera.
15 Section 4 describes the projected benefits associated with the conversion of
16 Canaveral and Riviera by 2013 and 2014, respectively, and explains why FPL
17 concluded that these plant conversions constitute the best, most cost-effective
18 self-build alternative to meet FPL's capacity needs in that period. Section 5
19 discusses the results of the evaluation of FPL's proposed conversion of
20 Canaveral and Riviera compared to market proposals received in February,
21 2008, which confirm that the proposed plant conversions provide the best,
22 most cost-effective resource to meet FPL customers' needs through 2014, and
23 explains why FPL's request for an exemption from the Commission's Bid

1 Rule should be granted. Section 6 presents the significant adverse
2 consequences FPL and its customers would face if the Commission does not
3 grant affirmative determinations of need for these plant conversions,
4 accompanied with Commission approval to proceed with the conversions.

5

6

I. FPL'S REQUEST FOR COMMISSION APPROVALS

7

8 **Q. Please explain the relief FPL seeks in this proceeding.**

9 A. FPL seeks from the Commission affirmative determinations of need for the
10 conversion of Canaveral, and for the conversion of Riviera, with projected
11 completion dates of June 2013 and June 2014, respectively.

12

13 FPL's request for affirmative determinations of need for these two plant
14 conversions is the culmination of an extensive evaluation designed to identify
15 the best, most cost-effective alternatives available to meet FPL's resource
16 need through 2014, as the next step in FPL's resource plan after the addition
17 of West County Energy Center Unit 3 (WCEC 3) in 2011. FPL's evaluation
18 began with FPL's assessment of its customers' future generation capacity
19 needs after all cost effective additional DSM measures and renewable
20 resources are considered. FPL then compared the proposed plant conversions
21 against a different self-build alternative that did not involve the conversion of
22 existing plants. This comparison resulted in the selection of the proposed plant
23 conversions as the most cost-effective self-build option available to FPL. FPL

1 also compared the proposed plant conversions against recent market proposals
2 for generation capacity. The results of this analysis confirmed that the
3 proposed plant conversions are the best alternative available to FPL to meet
4 resource needs through 2014.

5
6 Both the addition of WCEC 3 in 2011, the determination of need for which is
7 currently pending before the Commission, and the conversion of Canaveral
8 and Riviera by 2013 and 2014, respectively, are essential components of
9 FPL's strategy to provide the new generating capacity needed to meet the
10 growing resource needs of its customers through 2017, as well as to reduce
11 emissions of CO₂ and other substances in the most cost-effective manner.
12 These capacity additions are necessary in order for FPL to continue to deliver
13 electricity at a reasonable cost, while complying with anticipated
14 environmental requirements.

15 **Q. How much generating capacity will be needed to meet FPL customers'**
16 **needs through 2017?**

17 A. Based on FPL's load forecast revised in 2008, FPL projects that between 2011
18 and 2017 FPL will have to add about 4,844 MW of new generation capacity,
19 or 3,625 MW of new generation capacity after the addition of WCEC 3 in
20 2011, over and above what will be saved through FPL's extensive DSM and
21 renewable resource efforts, to keep pace with population and economic
22 growth in Florida.

1 **Q. Why is FPL proposing to convert Canaveral and Riviera?**

2 A. Because the resource plan that includes the conversion of Canaveral and
3 Riviera by June of 2013 and June of 2014, respectively, the Resource Plan
4 with Conversions, which was developed to meet the reliability criteria
5 previously approved by the Commission and thus ensure reliable electric
6 service to FPL's customers beginning in 2013, will result in significantly
7 greater benefits to FPL's customers than the other resource plans that FPL has
8 evaluated. These benefits fall in five categories:

- 9
- First, as shown in Exhibit SRS-6 attached to the testimony of FPL
10 witness Sim, FPL's plan with the proposed plant conversions, the
11 Resource Plan with Conversions, will result in customer savings of
12 about \$457 million, cumulative present value of revenue
13 requirements in 2008 dollars (CPVRR) compared to the Resource
14 Plan without Conversions, a plan that would add a new FPL-built
15 combined cycle generating unit at a Greenfield site in 2014,
16 instead of the Canaveral and Riviera conversions. The magnitude
17 of the savings that would result from these plant conversions
18 would grow to \$890 million (CPVRR) with a high environmental
19 compliance costs, and would grow further to \$1,221 million
20 (CPVRR) with high natural gas cost and high environmental
21 compliance costs.

1 The Resource Plan with Conversions will also result in customer
2 savings of more than \$480 million (CPVRR) compared to the lowest
3 cost alternate resource plan that includes one or more market proposals
4 as capacity additions in 2013 and/or 2014, instead of the Canaveral
5 and Riviera conversions.

6

7 • Second, replacing the existing Canaveral and Riviera plants with
8 the two clean, highly efficient, gas-burning CCEC and RBEC by
9 2013 and 2014, respectively, will enable FPL to reduce system air
10 emissions during the life of the converted units as follows: CO₂ by
11 about 15.7 million tons, sulfur dioxide (SO₂) by 60,300 tons, and
12 nitrogen oxide (NO_x) by 55,300 tons, compared to the Resource
13 Plan without Conversions. These emission reductions will be
14 accomplished while saving FPL's customers about \$457 (CPVRR).
15 As a result, these plant conversions will contribute significantly
16 toward achieving the CO₂ emission targets reflected in Governor
17 Crist's Executive Order 07-127, and whatever specific legal
18 requirements may be implemented in the future as a result of that
19 Order or pursuant to federal or state law.

20

21 • Third, FPL's system average heat rate, the measure of system fuel
22 efficiency, will improve to 8,040 Btu/kWh in 2015 after the
23 conversions, compared to 8,127 Btu/kWh under the Resource Plan

1 without Conversions, a difference of 1.07%. As a result, the plant
2 conversions would reduce FPL's use of natural gas and fuel oil.
3 For example, natural gas use in 2013 through 2017 alone would be
4 reduced by about 10.6 million MMBtu and fuel oil use would be
5 reduced by about 7.5 million barrels, compared to the Resource
6 Plan without Conversions. This fuel efficiency gain will help
7 offset, in part, the effects of projected rising fuel prices in the
8 future.

9

- 10 • Fourth, some of the projected cost components for the conversion
11 of Canaveral and Riviera present far less uncertainty for FPL and
12 its customers, compared to the costs of building generation at a
13 new Greenfield site. The economic analysis results of the proposed
14 plant conversions already reflect the fact that costs related to land,
15 water and transmission at an existing plant site are significantly
16 lower than they would be at an undeveloped Greenfield site.
17 Moreover, the magnitude of these costs is much more uncertain for
18 a Greenfield site (i.e., actual costs at a Greenfield site may well be
19 significantly higher than currently projected), a fact that is not
20 reflected in the results of the analysis. Therefore, the benefit to
21 FPL's customers of converting Canaveral and Riviera could be
22 significantly greater than the \$457 million (CPVRR), reported
23 above.

1 • Fifth, the proposed conversions of Canaveral and Riviera will
2 enable FPL to increase system generation that is required to
3 maintain system reliability and system fuel efficiency to reduce
4 fuel costs without using new land and without increasing the
5 allocation of water resources to plant use. Converting Canaveral
6 and Riviera will also avoid the need for new rights-of-way for
7 transmission facilities. In addition, because the new CCEC and
8 RBEC can receive backup fuel delivered via waterborne transport
9 it will contribute to much greater system reliability than would be
10 the case with inland plants that must rely solely on truck deliveries.

11

12 In summary, the proposed conversions of Canaveral and Riviera by 2013 and
13 2014, respectively, are the best, most cost-effective alternatives available as
14 part of FPL's strategic resource plan to reliably meet the growing electricity
15 needs of FPL's customers in this time frame, while also reducing CO₂
16 emissions. The benefits of the plant conversions discussed above are
17 summarized in Exhibit RS-1, attached to my testimony.

18 **Q. Do new DSM and renewable resources diminish the beneficial effects of**
19 **the proposed plant conversions?**

20 A. No. There is no currently identified additional cost-effective DSM not already
21 reflected in FPL's resource plan for the period through 2017. Therefore,
22 additional cost-effective DSM cannot be relied on to contribute to system
23 reliability, and there is no evidence to suggest that additional DSM could

1 provide economic benefits to FPL's customers that could in any way diminish
2 the unquestionable benefits provided by the conversion of Canaveral and
3 Riviera.

4
5 Similarly, there are no significant cost-effective renewable resources
6 identified that could provide any significant amount of firm generating
7 capacity in the period through 2017. Therefore, renewable capacity cannot be
8 counted on to contribute to system reliability, as does the conversion of
9 Canaveral and Riviera. Furthermore, any future renewable resources that
10 could cost-effectively provide energy (^{whether or not they provide}~~but not~~ firm capacity) would not
11 compete with the benefits described above that will be provided by the
12 proposed plant conversions, but rather would complement those benefits.

13
14 Further, FPL's projected growth in load is such that there remains ample
15 opportunity for additional DSM and renewable capacity to play an even more
16 important role than it does today in helping to meet the ever increasing needs
17 of Florida's growing population and economy for reliable electric service.

18 **Q. Please summarize your conclusions regarding the conversions of**
19 **Canaveral and Riviera.**

20 A. In summary, without the conversions of Canaveral and Riviera by 2013 and
21 2014, respectively, FPL's customers would be served by a less efficient, much
22 more costly and less environmentally sensitive system. Also, without the
23 proposed plant conversions FPL would not be able to make such a major

1 contribution towards achieving compliance with any CO₂ emission limit that
2 may be imposed by future laws and regulations, nor to achieve significant
3 CO₂ emission reductions in such a highly cost-effective way for its customers.
4 These factors lead to the conclusion that the conversions of Canaveral and
5 Riviera by 2013 and 2014, respectively, are needed to meet the system
6 reliability criteria considered essential by FPL and previously approved by the
7 Commission, and thus enable FPL to provide adequate electricity at a
8 reasonable cost to FPL's customers.

9 **Q. Does the 2008 load forecast used by FPL in this proceeding include the**
10 **Lee County Electric Cooperative (Lee County) load?**

11 A. Yes. About 200 MW of Lee County load is included in 2010 through 2013.
12 The full Lee County load is included beginning in 2014.

13 **Q. How will the addition of the Lee County load affect the timing of FPL's**
14 **resource needs?**

15 A. The addition of the Lee County load does not affect the timing of FPL's
16 resource needs until 2014. This is because in 2010 through 2013 FPL's
17 incremental capacity commitment related to the Lee County load adds only
18 about 200 MW to FPL's peak load, which can be met with the new resource
19 additions that have already been approved by the Commission and have been
20 reflected in FPL's resource plan. Consequently, FPL's resource plan does not
21 reflect any adjustment due to the Lee County load addition until 2014.

1 **Q. Does FPL's recommendation to convert Canaveral and Riviera depend**
2 **on the addition of the Lee County load?**

3 A. No. The proposed plant conversions will provide the significant benefits listed
4 above, regardless of the Lee County load addition. The precise amounts of
5 savings to customers, emission reductions, efficiency gain, and oil and gas use
6 reductions would be somewhat different if FPL were not serving the Lee
7 County load, but these benefits would still be equally compelling. Therefore,
8 FPL would be requesting from the Commission approval for the conversion of
9 Canaveral and Riviera even without the Lee County load.

10 **Q. Is it reasonable to reflect the Lee County load in FPL's resource planning**
11 **process?**

12 A. Yes. FPL has entered into an obligation to serve the Lee County load and,
13 subject only to regulatory approval, the Company is committed to meet that
14 future need. Therefore, FPL has reflected the Lee County load in its resource
15 planning process, especially because of the very long lead time required to
16 complete the process from identifying a future capacity need to cost-
17 effectively placing new generation capacity in service to meet that need in an
18 environmentally sensitive manner.

19 **Q. What would FPL's cumulative projected resource need through 2017**
20 **have been absent the Lee County load?**

21 A. Without the Lee County load FPL would need to add 3,665 MW of new
22 generation capacity instead of the 4,844 MW reported above in the period
23 through 2017. After adding WCEC in 2011, FPL would still need 2,446 MW

1 of new generation capacity by 2017. Therefore, the net capacity addition
2 (1,069 MW) provided by the conversion of Canaveral and Riviera would still
3 be needed, and it would provide about 44% of this remaining 2,446 MW of
4 capacity to meet its customers' demand for electricity through 2017 even in
5 this reduced load situation. More importantly, the conversion of Canaveral
6 and Riviera would still be needed to provide the many significant customer
7 benefits described above.

8 **Q. Are the conversions of Canaveral and Riviera the most cost-effective**
9 **alternatives to meet FPL's customers' needs for new resources?**

10 A. Yes. As explained in the testimonies of FPL witnesses Sim and Taylor, the
11 conversions of Canaveral and Riviera are the best, most cost-effective self
12 build options available to meet the needs of FPL's customers. Specifically,
13 these proposed plant conversions were determined to be the best, most cost-
14 effective alternatives compared to both another self-build option, and
15 alternative portfolios constructed using market proposals.

16

17 Furthermore, neither of these no-conversion alternatives offered any non-
18 economic advantages over the conversions of Canaveral and Riviera.
19 Therefore, FPL has established that the conversions of Canaveral and Riviera
20 by 2013 and 2014, respectively, are by far the best, most cost-effective
21 alternatives to meet FPL customers' needs for additional resources in that time
22 period.

1 **Q. Will FPL continue to evaluate the type of equipment to be used for the**
2 **conversions of Canaveral and Riviera?**

3 A. Yes. As explained in the testimony of FPL witness Tindell, FPL will consider
4 combustion turbines (CT) with improved characteristics relative to those of
5 the “G” CTs, should such technology become available. Although the
6 currently projected benefits of this unique opportunity presented by the
7 conversions of Canaveral and Riviera, which are based on the use of “G” gas
8 turbines, are very significant, FPL will continue to evaluate the possible use of
9 CTs projected by manufacturers to be even more efficient than the “G”
10 technology, to determine whether even greater benefits could be achieved.

11 **Q. If FPL were to select CTs other than the “G” CTs assumed in FPL’s**
12 **analysis, how does FPL propose to address such selection as it pertains to**
13 **the determinations of need requested by FPL in this proceeding?**

14 A. FPL requests that, as part of the Commission’s Order granting affirmative
15 determinations of need for the conversions of Canaveral and Riviera, the
16 Commission provide that its determinations are not predicated on the use of a
17 particular CT, thus ensuring that FPL has the flexibility through its
18 negotiations and analyses to select the CT that best meets customers’ needs in
19 terms of reliability and cost-effectiveness. Of course, FPL would make that
20 decision only if the projected cost to FPL’s customers related to the
21 conversions of Canaveral and Riviera measured in terms of system CPVRR
22 would be lower as a result of the use of an alternate CT than with the use of
23 “G” CTs, regardless of any changes in the capital costs attributable to the

1 choice of technology. In the event of its selection of something other than the
2 “G” CTs subsequent to the Commission having granted determinations of
3 need for the projects, FPL would propose to make an informational filing to
4 the Commission that documents the projected comparative cost advantage of
5 the alternate CT technology chosen.

6

7 **II. INTRODUCTION OF FPL WITNESSES**

8

9 **Q. How many witnesses are supporting FPL’s petition through direct pre-**
10 **filed testimony?**

11 A. Six other witnesses are submitting direct testimony.

12 **Q. Please summarize the topics addressed in the testimony of each of these**
13 **witnesses.**

14 A. FPL witness Dr. Rosemary Morley presents FPL's load forecasting process,
15 discusses the methodologies and assumptions used in that process, and
16 presents FPL’s resulting load forecasts, which have been used in FPL's IRP
17 process, and were used in analyses performed related to the proposed plant
18 conversions.

19

20 FPL witness Dr. Steven R. Sim describes FPL’s IRP process, presents the
21 need for new resources to meet customers’ demand for electricity in 2008
22 through 2017, concludes that DSM alone cannot meet this need and explains
23 the analyses FPL performed to evaluate the conversion of Canaveral and

1 Riviera compared to other self-build alternatives. FPL witness Sim presents
2 the results of FPL's analyses, and explains his conclusion that based on FPL's
3 evaluation, the proposed plant conversions constitute the best choice for
4 FPL's customers.

5
6 FPL witness Alan Taylor of Sedway Consulting describes his role as an
7 Independent Evaluator of FPL's proposed plant conversions, of FPL's
8 Greenfield self-build option and of comparable generation portfolios that
9 include generating capacity proposals received by FPL in February, 2008.
10 FPL witness Taylor also explains the process he followed and the tools he
11 used to conduct his economic evaluation, presents the results of that
12 evaluation, and explains his conclusion that the conversions of Canaveral and
13 Riviera are the most cost-effective alternatives to meet FPL's resource need.

14
15 FPL witness Heather Stubblefield describes the transportation plan to deliver
16 natural gas and light oil to the new converted Canaveral and Riviera plant and
17 testifies to the ready availability of natural gas for those converted plants, as
18 part of FPL's overall system. FPL witness Stubblefield also supports the fuel
19 price forecast used in FPL's economic analysis of the proposed conversions
20 and other generation alternatives.

21
22 FPL witness Kennard Kosky presents the environmental compliance cost
23 forecasts for SO₂, NO_x, mercury (Hg), and CO₂ utilized by FPL in its analysis

1 of the proposed plant conversions and available generation alternatives. In
2 addition, FPL witness Kosky discusses the magnitude of future reductions in
3 emissions that will be realized through the conversions of Canaveral and
4 Riviera.

5
6 FPL witness Cindy Tindell presents the engineering details of FPL's proposed
7 plant conversions, which involve the removal of the existing facilities at
8 Canaveral and Riviera, and the construction of two new state-of-the-art 3x1
9 combined cycle (CC) units, one at CCEC and the other at RBEC. Included in
10 FPL witness Tindell's testimony are the cost and performance specifications
11 of the proposed conversions, which are reflected in FPL's economic analyses.

12

13 III. RESOURCE PLANS USED IN FPL'S ANALYSIS

14

15 **Q. Please outline how FPL determined its generation capacity needs through**
16 **2017 as part of its IRP process.**

17 A. As explained by FPL witness Morley, in early 2008 FPL reviewed and revised
18 its peak electricity demand forecast to reflect recent growth trends. FPL's
19 current peak demand forecast was used in its generation reliability assessment
20 using the two reliability planning criteria previously approved by the
21 Commission. One planning criterion consists of maintaining a 20% reserve
22 margin; the other criterion consists of demonstrating that the Loss of Load

1 Probability (LOLP) in FPL's system will remain lower than 0.1 days per year
2 during the planning period. FPL witness Sim discusses the reliability criteria.

3 **Q. What was the result of FPL's generation reliability assessment in 2008?**

4 A. FPL's reliability assessment completed in early 2008 determined that due to
5 load growth and the expiration of power purchases, FPL's total resource need
6 in 2011 through 2017 is 6,490 MW. After considering all cost-effective DSM
7 increases in this period, all projected cost-effective renewable resources, and
8 the uprates to FPL's existing nuclear units already approved by the
9 Commission, FPL will still need to add 4,844 MW of new generation capacity
10 in this period. After adding WCEC 3 FPL will still need 3,625 MW by 2017
11 in order to continue to meet its 20% reserve margin. FPL also determined that
12 adding the new generating capacity required to meet the 20% reserve margin
13 criterion as specified above would enhance and further ensure FPL's ability to
14 meet the 0.1 days per year LOLP criterion during that period.

15 **Q. What amount of cost-effective DSM is available during FPL's planning**
16 **period?**

17 A. As can be determined from column 5 in Exhibit SRS-2 attached to FPL
18 witness Sim's testimony, FPL projects that it will add about 884 MW
19 (summer MW at the generator) of new DSM in the years 2011 through 2017,
20 sufficient to avoid about 1,061 MW of new generating capacity in that
21 planning period based on FPL's 20% reserve margin requirement. However,
22 this increase in DSM has already been reflected in the calculation FPL has
23 performed, which identified a need for 4,844 MW of new generation capacity

1 in 2011 through 2017, above the 1,061 MW avoided by new DSM, as well as
2 renewable purchases and nuclear uprates. It is important to note from these
3 figures that without DSM FPL's total generation capacity need in this period
4 would be 5,905 MW, and that the 1,061 MW avoided through DSM additions
5 cover almost 18% of that total capacity need.

6
7 It is also important to note that, as indicated by FPL witness Sim, through
8 2007 FPL and its customers have avoided the need for 4,753 MW of
9 generation capacity as a result of cost-effective DSM programs, and that in
10 2008 through 2010 DSM increases will be sufficient to avoid another 454
11 MW of generating capacity. Added to the 1,061 MW of capacity that will be
12 avoided by DSM additions in 2011 through 2017, FPL and its customers will
13 have avoided a total of 6,268 MW of generating capacity by 2017 as a result
14 of DSM programs, equal to about 21% of the projected amount of FPL-owned
15 generating capacity (almost 30,000 MW) in operation by 2017.

16 **Q. Is there DSM adequate to avoid or significantly mitigate the need for the**
17 **proposed plant conversions?**

18 A. No. At present FPL has not identified any additional cost-effective DSM
19 beyond that already reflected in the need calculations. Therefore, considering
20 the need for resources through 2017, DSM is not available to avoid or
21 indefinitely defer the need for the proposed plant conversions. In fact, even
22 after the addition of all the currently projected DSM increases and generation
23 capacity additions already reflected in FPL's resource plan, and after adding

1 WCEC 3 in 2011, and after the proposed plant conversions FPL would still
2 need to add about 2,556 MW of new generating capacity by 2017.

3
4 As FPL witness Sim discusses in his testimony, FPL will continue to evaluate
5 DSM opportunities as part of its planning process, and as part of the
6 Commission's upcoming DSM Goals proceeding. To the extent that FPL were
7 to identify and implement additional cost-effective DSM opportunities in the
8 future, such additional DSM would help reduce part of the 2,556 MW of
9 currently projected generation capacity need through 2017 that remains after
10 the addition of WCEC 3 in 2011 and the conversions of Canaveral and Riviera
11 by 2013 and 2014, respectively. This remaining projected need of 2,556 MW,
12 which is shown on Exhibit RS-2 as being met by "Natural Gas and/or Other
13 Resources," is determined by subtracting the capacity provided by WCEC 3
14 (1,219 MW) from the total need for new generating capacity (4,844 MW),
15 then adding the existing capacity at Canaveral and Riviera (1,357 MW,
16 combined) that will be removed from service, then subtracting the new
17 capacity provided by the new CCEC and RBEC (2,426 MW, combined).

18 **Q. What amount of cost-effective generation capacity from renewable**
19 **resources is available during FPL's planning period?**

20 A. FPL's resource plan already includes (in the future) all the existing firm
21 renewable generating capacity that FPL is currently purchasing, including
22 about 98 MW from contracts that expire and FPL will try to renew by 2010,
23 and another of about 45 MW that expires by 2011, which FPL will try to

1 renew. FPL's resource plan also reflects 126 MW of new capacity from
2 renewable resources based on what FPL believes is a reasonable estimate of
3 cost-effective proposals for firm renewable generating capacity it will receive
4 by June 2008 in response to FPL's April 2008 request for proposals for
5 renewable generation and FPL's own renewable development efforts. At
6 present FPL has not been able to identify any other cost-effective sources of
7 firm renewable generating capacity.

8 **Q. Is there adequate firm generating capacity from renewable resources to**
9 **avoid or significantly mitigate the need for the proposed plant**
10 **conversions?**

11 A. No. As explained above, all the existing and new potential cost-effective firm
12 generating capacity from renewable resources that would become available
13 during the planning period has already been reflected in FPL's resource plan.
14 Therefore, neither the need for nor the benefits provided by the proposed plant
15 conversions are diminished by DSM or renewable resources.

16 **Q. How did FPL select the conversions of Canaveral and Riviera by 2013**
17 **and 2014, respectively as FPL's most cost-effective self-built alternatives**
18 **to meet FPL's need in that period?**

19 A. FPL compared a resource plan that meets FPL's reliability criteria and
20 includes the proposed conversions of Canaveral and Riviera by 2013 and
21 2014, respectively, the Resource Plan with Conversions, to an alternate plan
22 that would also meet FPL's reliability criteria, but would instead add a new
23 3X1 G CC unit at a Greenfield site in 2014 (and make no changes to FPL's

1 existing generation portfolio), the Resource Plan without Conversions. As
2 described below and explained in greater detail by FPL witness Sim, the
3 results of this analysis confirmed that the proposed plant conversions
4 constitute the best alternatives to maintain system reliability for FPL's
5 customers.

6 **Q. Please indicate how much new generating capacity would be added to**
7 **FPL's system in each of the resource plans used in FPL's economic**
8 **analysis of the proposed plant conversions?**

9 A. The resource plans FPL utilized are described in the testimony of FPL witness
10 Sim and tabulated in Exhibit SRS-3 attached to FPL witness Sim's testimony.
11 The Resource Plan with Conversions adds 6,372 MW of total net long-term
12 resources to meet a projected need of 6,490 MW in 2011 through 2017. The
13 alternative Resource Plan without Conversions differs from the first primarily
14 in that it does not remove 1,357 MW of existing capacity at Canaveral and
15 Riviera by 2011 and, instead of adding 1,219 MW of capacity in 2013 and
16 1,207 MW in 2014, it adds 1,219 MW of new capacity in 2014. This alternate
17 Resource Plan without Conversions would add 6,522 MW of new long-term
18 resources in 2011 through 2017.

19 **Q. Is it possible that the resource additions, after 2014, reflected in these**
20 **resource plans would change in the future?**

21 A. Yes. A utility's resource plan is not, and cannot be, static. As indicated earlier
22 in my testimony, FPL is evaluating self-build renewable resource
23 opportunities, pursuing additional renewable purchases and continuing to

1 evaluate cost-effective DSM opportunities. The outcome of these efforts could
2 well change FPL's resource plan beyond 2014. However, such a possibility
3 has no bearing on FPL's recommendations with regard to the conversions of
4 Canaveral and Riviera.

5
6 The objective of the generation additions reflected in the resource plans
7 presented by FPL witness Sim is to provide a reasonable, neutral backdrop
8 against which the proposed conversions of Canaveral and Riviera in 2013 and
9 2014, respectively, can be fairly compared to another comparable self-build
10 generation capacity alternative that FPL could use in place of the proposed
11 plant conversions as part of the resource strategy to meet its capacity needs
12 through 2017.

13
14 At this time, FPL has not committed to pursuing the two additional gas-fueled
15 combined cycle units that would be added in 2016, after the addition of
16 WCEC 3 and the proposed conversions of Canaveral and Riviera. Therefore,
17 as FPL's projected need for new resources in the future changes, and as other
18 resource alternatives such as additional cost-effective DSM, or additional
19 renewable resources (purchased or self-build), or other alternatives become
20 available, and as factors that affect some or all of the resource alternatives
21 such as new legislation or regulations requiring increased use of renewable
22 resources, change, FPL's resource plan would be modified. Nevertheless, the
23 resource plans utilized in FPL's analyses reflect reasonable choices for

1 meeting FPL's needs through 2017, based on what is known today.
2 Therefore, they provide appropriate frames of reference within which to
3 assess the customer benefit of the conversions of Canaveral and Riviera.

4 **Q. Is adding WCEC 3 in 2011, as has been proposed by FPL in the ongoing**
5 **need determination proceeding for WCEC 3, necessary for FPL to**
6 **proceed with the conversion of existing plants for 2013 and 2014?**

7 A. Yes. In order to do the work required to convert existing steam plants to new,
8 cleaner, highly efficient generation, it will be necessary to remove from
9 service generation about 1,357 MW of existing generation capacity at
10 Canaveral and Riviera by 2011. Removing from service this quantity of
11 generating capacity by 2011 would reduce FPL's reserve margin to about
12 16%, well below the 20% reserve margin level that the Commission and FPL
13 agree is necessary to ensure reliable service. Such a low planning reserve
14 margin would be inadequate to ensure reliable service because it would
15 consist of only 6% generation reserve and 10% DSM reserve. Adding the
16 1,219 MW of WCEC 3 in June of 2011 would offset the loss of generating
17 capacity from the existing plants being removed from service and would
18 restore the reserve margin to just above 21%, with 11% generation reserve.
19 FPL cannot proceed to remove from service the existing generation at
20 Canaveral and Riviera without offsetting these capacity reductions in 2011.
21 Therefore, without WCEC 3 in 2011, FPL would have to obtain some other
22 capacity alternative to maintain system reliability if it were to proceed with
23 the cleaner, high efficiency conversion of existing plants. However, as has

1 been explained in FPL's testimony presented in support of its request for a
2 determination of need for WCEC 3, because, whether with or without the
3 proposed plant conversions, adding WCEC 3 in 2011 is the most economic
4 resource available to FPL in 2011 through 2013, it would not be beneficial to
5 FPL's customers to implement any other alternative. Therefore, adding
6 WCEC 3 in 2011 is necessary and appropriate if FPL is to proceed with the
7 cleaner, high efficiency conversion of Canaveral and Riviera and continue to
8 ensure system reliability.

9 **Q. Is the 20% reserve margin planning criterions appropriate for use in**
10 **FPL's IRP process?**

11 A. Yes. The 20% reserve margin reliability criterion utilized by FPL in its
12 integrated resource planning process has been reviewed and approved by the
13 Commission and it is appropriate and necessary to ensure reliable service for
14 FPL's customers.

15 **Q. Could FPL lower the planning reserve margin reliability criterion to 15%**
16 **and still provide reliable service to its customers?**

17 A. No. A 15% reserve margin is not adequate to ensure reliable service in FPL's
18 system.

19 **Q. How was FPL's current reserve margin criterion of 20% established?**

20 A. Prior to 1999 FPL used a reserve margin criterion of 15%. It should be noted
21 that FPL's reserves at that time consisted more heavily of generation reserves,
22 with load management contributing less than half of what it will provide in
23 2014. However, the Commission initiated in the late 1990s a proceeding to

1 determine what the appropriate reserve margin criterion should be to ensure
2 reliability of electric service in the future, recognizing rapid increases in
3 electric loads, the introduction and expansion of new technologies, and
4 recognition that fuel supply interruptions could occur. After audits were
5 performed by the Commission Staff, and after several stakeholders, including
6 Florida's investor-owned utilities, presented their analyses and conclusions,
7 all parties agreed that a 20% reserve margin for the investor-owned utilities
8 was the appropriate level that would ensure reliability of service in the
9 utilities' systems, as well as in peninsular Florida. These investor-owned
10 utilities stipulated that they would agree to use a 20% reserve margin as one of
11 the reliability criteria for resource planning, in addition to a probabilistic
12 criterion such as LOLP, beginning in the summer of 2004. This stipulation
13 was approved by the Commission.

14 **Q. Why is a 15% reserve margin not adequate to ensure reliability in FPL's**
15 **system?**

16 A. Because a 15% reserve margin, as used in the resource planning process,
17 would provide a level of generation reserves that would be too low to offset
18 the consequences of commonly occurring differences between the
19 assumptions used in FPL's long term plan and actual operating conditions,
20 especially if those differences occur at times when FPL has scheduled planned
21 maintenance outages for one or more generating units.

1 **Q. What differences are you referring to?**

2 A. There are a number of such differences, as one would expect when
3 recognizing that six or more years can separate forecasts that are used to make
4 resource decisions from actual conditions at the time the resource plan is
5 implemented. To illustrate my point I will provide a numerical example that
6 addresses two differences: one is the point in time during the year in which the
7 peak load actually occurs, and the other is the difference between the actual
8 magnitude of the peak load in a future year (2014) and the projected
9 magnitude of the peak for that year that would have been forecasted six years
10 earlier (2008).

11 **Q. How will you present this illustration?**

12 A. I will first use a calculation very similar to that presented in Exhibit SRS-2
13 attached to the testimony of FPL witness Sim to show, pursuant to the
14 resource planning process FPL follows to determine future needs, how a
15 projected reserve margin of 15% would be achieved for the summer of 2014.
16 This calculation is presented in my Exhibit RS-3. The only difference between
17 this calculation and that presented in SRS-2 is that the former includes
18 sufficient firm generating capacity in FPL's portfolio to reach a reserve
19 margin of 15%. The forecasted load for 2014 was developed in 2008 as part of
20 FPL's IRP process. Column 3 shows the total projected capacity available in
21 FPL's system in the summer of 2014 (27,502 MW). Column 4 shows the
22 projected peak load in the summer of 2014 (26,576 MW). Column 5 shows
23 the quantity of projected DSM available in the summer of 2014 (2,651 MW).

1 Column 6 shows the projected “firm” peak load; that is, that portion of the
2 projected peak load that cannot be mitigated through the exercise of DSM.
3 This projected “firm” peak load is equal to the projected peak load less the
4 projected DSM, or 23,925 MW. It should be noted that this demonstrates that
5 in its resource planning process FPL first considers all the cost-effective DSM
6 as a resource before determining what additional supply-side resources are
7 required.

8
9 Column 7 shows the projected generation reserves compared to the projected
10 “firm” load. This projected generation reserve compared to projected “firm”
11 peak load is equal to projected capacity available less projected “firm” peak
12 load, or 3,577 MW. Column 8 shows the projected reserve margin that this
13 projected generation reserve provides compared to the “firm” peak load; it is
14 equal to the projected generation reserve against “firm” peak load divided by
15 “firm” peak load, expressed as a percent. This is the reserve margin that is
16 used in FPL’s resource planning process to develop and compare plans that
17 will provide a 20% reserve margin relative to “firm” peak load. In this case,
18 however, the projected reserve margin against the projected “firm” peak load,
19 after all the DSM is utilized is 15% in the summer of 2014. As column 9
20 shows, FPL would need to add 1,208 MW of additional firm capacity in order
21 to meet the 20% reserve margin criterion.

1 **Q. You indicated that the calculation above is consistent with FPL's resource**
2 **planning process. How does FPL allocate resources to meet actual electric**
3 **load?**

4 A. In actual daily operations FPL dispatches its generation resources in economic
5 order, with lowest cost generation first, to produce all the electricity its
6 customers need. It is only if generation resources are insufficient to meet
7 actual load that the load management portion of DSM is utilized. I am
8 providing an example of the effect of having only 15% reserve margin in my
9 Exhibit RS-4, page 1 of 2. For simplicity, my example assumes that all the
10 DSM consists of load management. First, it is assumed that actual conditions
11 in 2014 are the same as shown on Exhibit RS-3. In other words, the peak load
12 is 26,576 MW and total capacity available is 27,502 MW. Therefore, FPL
13 would be able to meet the load and have 926 MW of unused generation. It
14 would also have 2,651 MW of unused DSM for total reserves of 3,577 MW.
15 This is the same total of reserves as shown on column 7 of Exhibit RS-3, but
16 note that only 926 MW are generation reserves. In other words, in actual
17 operations, generation reserves are only about one fourth of total reserves,
18 with DSM providing three fourths of the reserve. Another way to look at these
19 results is that, in effect, accepting a 15% reserve margin criterion would result
20 in generation reserves that actually provide less than 4% operational reserve
21 margin. Applying the rest of the reserve margin, which is provided by DSM,
22 requires partial curtailment of service to customers who subscribe to load

1 control. This is the situation that would exist in 2014 if all happens as was
2 forecasted six years earlier, in 2008.

3 **Q. How would a difference between the projected and actual date of a year's**
4 **peak load affect FPL's ability to meet its customer's needs?**

5 A. FPL's forecast typically projects that the summer peak load will occur in
6 August and, at present, no plant outages for inspection and maintenance are
7 planned during that month. However, the peak load can occur in June and
8 July when such plant outages are planned. In fact, in the last 16 years the
9 actual peak load day has occurred in August only 9 times. Therefore, it has
10 been a fairly common occurrence that the peak day has occurred in June or
11 July, instead of August.

12 **Q. How would the actual peak day occurring in June of 2014 instead of**
13 **August affect the results presented above, assuming FPL were to plan for**
14 **a 15% reserve margin in 2014?**

15 A. Typically, about 800 MW of generation capacity will be out of service for
16 planned maintenance in the month of June. Therefore, if the projected peak for
17 2014 were to occur in June, instead of having 926 MW of generation reserves
18 on the peak load day FPL would have only 126 MW of generation reserves. In
19 other words, the operational reserve margin provided by generation resources
20 in this situation would be not 4%, but only 0.5%.

1 **Q. How would a difference between the actual and projected magnitude in**
2 **the peak load affect FPL's ability to meet its customer's needs?**

3 A. If the actual peak load in a particular year is significantly greater than had
4 been projected at the time the resource plan was developed for that year as
5 much as six years earlier, unless the reserves are adequate FPL would not be
6 able to meet its customers' needs.

7 **Q. What has been the average percent difference between the actual peak**
8 **load and the peak load forecast developed six years earlier?**

9 A. On average in the last four years the actual peak load has been 7.3% higher
10 than had been projected six years before. As stated previously, FPL's resource
11 plan that includes the proposed addition of WCEC in 2011 and the
12 conversions of Canaveral and Riviera by 2013 and 2014, respectively utilizes
13 FPL's most recent peak load forecast developed in 2008.

14 **Q. How would your results above change if instead of the actual peak in**
15 **2014 occurring in August it occurred in June, and if the actual magnitude**
16 **of the peak load were 7.3% higher than the forecast, consistent with the**
17 **three-year average percent variance, and assuming that FPL plans for a**
18 **15% reserve margin in 2014?**

19 A. The actual peak load in June of 2014 would be 28,516 MW, which would
20 exceed by 1,814 MW the amount of generation capability of 26,702 MW. In
21 other words, if "average" differences were to occur in only these two areas
22 that affect FPL's ability to meet its customers' needs, based on a 15% reserve
23 margin criterion FPL would be short of generation resources to serve its

1 customers and would be forced to exercise 1,814 MW of the DSM capability,
2 or almost 70% of all DSM. In fact, FPL would then have zero generation
3 reserves and would have only 821 MW of DSM left to address all other
4 possible unexpected occurrences.

5 **Q. Under these circumstances wouldn't FPL return to service all generation**
6 **facilities that are scheduled for planned maintenance to meet the higher**
7 **than projected peak load?**

8 A. FPL would indeed try to bring as many of the resources as possible back in
9 service. However, depending on the type of technology scheduled for planned
10 maintenance, the type of maintenance activity to be performed or the stage at
11 which the maintenance work is when there are indications that a significant
12 peak load is likely, FPL may not be able to return generation to service
13 quickly enough to meet the peak load requirement. It should be noted that as
14 FPL continues to add advanced gas turbines to its system, there will be less
15 and less flexibility regarding scheduling planned outages. For advanced gas
16 turbine technology, inspections and maintenance must be performed on a
17 strict schedule to avoid the risk of catastrophic technical failure.

18 **Q. In your calculations above have you assumed that any unplanned**
19 **generation or transmission outages would occur on the peak day?**

20 A. No. The results provided above assume that all generation that is scheduled to
21 operate on the peak day is operating at maximum capacity and that there are
22 no transmission interruptions. Similarly, this calculation assumes that there
23 are no fuel interruptions and that FPL is not providing emergency assistance

1 to other utilities. In other words, the calculations represented in these
2 examples reflect perfect performance of all systems, with only commonly
3 recurring differences between actual operating conditions and the forecast on
4 which the resource plan is based. The results above indicate that even if
5 everything in 2014 were to occur exactly as projected, generation reserves
6 would only be adequate to mitigate the effect of a combination of unplanned
7 outages and interruptions totaling up to 926 MW. To put this in perspective,
8 FPL has more than 20 generating units with generating capacity greater than
9 400 MW, of which 9 have a generating capacity greater than 630 MW.
10 Therefore, unplanned outages that could exceed 926 MW are not rare.

11

12 If the only deviation from the forecast is that the peak occurs in June when
13 800 MW of capacity is out of service for a planned maintenance outage, the
14 resulting generation reserves of 126 MW would not be adequate to mitigate
15 the effect of any unplanned outage except for one occurring in FPL's smallest
16 peaking units. As can be seen, the 15% reserve margin criterion is not
17 adequate to ensure reliable service.

18 **Q. How would the results with the higher adjusted peak load occurring in**
19 **June of 2014 change when FPL maintains a 20% reserve margin?**

20 A. As shown in Exhibit RS-3, maintaining a 20% reserve margin would require
21 total generation capacity to be 28,711 MW in 2014. As shown in Exhibit RS-
22 4, page 2 of 2, this plan would result in available generating capacity of
23 27,911 MW (after accounting for the 800 MW out for planned maintenance in

1 June 2014) plus 2,635 MW of DSM for a total of 30,546 MW of resources
2 against the higher adjusted total peak of 28,516 MW. In this situation FPL
3 would be able to meet load demand, provided that it exercises 605 MW of
4 DSM, leaving a DSM reserve of 2,030 MW to meet any other unexpected
5 circumstance. It is important to note that even with a 20% reserve margin in
6 2014, the occurrence of ordinary differences between planned and actual peak
7 load conditions such as those presented in this example could use up all
8 generation reserves and about 23% of available DSM would have to be
9 utilized. That leaves only 77% of the DSM reserves, and no generation
10 reserves to offset all other unplanned occurrences, against which the reserve
11 margin is intended to protect FPL's customers. For this reason FPL believes
12 that maintaining a 20% reserve margin criterion for resource planning
13 purposes is in the best interest of its customers.

14 **Q. Is this example intended to demonstrate that FPL's 20% reserve margin**
15 **criterion will always be the correct level of reserve margin to apply to**
16 **resource planning?**

17 A. No. This example shows that the Commission should dismiss any suggestion
18 that a 15% reserve margin planning criterion would be adequate. The results
19 above show that a 15% reserve margin reliability criterion is totally
20 inadequate to ensure that FPL could provide reliable service to its customers.
21 Furthermore, these analysis results demonstrate that the additional reliability
22 provided by a 20% reserve margin planning criterion compared to what it
23 would be with a 15% reserve margin is very valuable to FPL's customers.

1 The question regarding the proper level of reserve margin for future resource
2 planning processes would need to be addressed in an independent proceeding
3 and the implementation date of any change should be far enough into the
4 future to allow utilities to incorporate it into their strategic and operational
5 planning processes, especially because it could well be determined that a
6 reserve margin greater than 20% would be appropriate in the future. It is
7 important to note that the reserve margin criterion is a critical starting point in
8 a utility's multi-year process of identifying need for new resources, obtaining
9 data on the various alternatives, evaluating those alternatives, selecting the
10 best alternative to meet that need, negotiating contract for equipment and
11 construction services or purchased power, and presenting a petition to the
12 Commission to obtain a determination of need. If this basic foundation of the
13 process were to be changed as part of the need determination proceeding,
14 there would be no basis on which a utility could begin the planning process.
15 This view is consistent with the Commission's own views, expressed in
16 Commission Order No. PSC-03-0175-FOF-EI regarding a need determination
17 petition for Progress Energy Florida's Hines Unit 3 in which the Commission
18 stated that it is inappropriate to consider a change to the reserve margin
19 planning criterion in a particular utility's need determination proceeding.

1 **IV. SELECTION OF THE CONVERSION OF CANAVERAL AND**

2 **RIVIERA**

3

4 **Q. What do the proposed cleaner, high efficiency conversions of Canaveral**
5 **and Riviera involve?**

6 A. As explained by FPL witness Tindell, the conversions of these existing plants
7 to cleaner, high efficiency generation consists of replacing the existing
8 Canaveral and Riviera steam plants, which generally have heat rates of
9 approximately 10,000 Btu/kWh, with two new 3x1 G (or, as stated by FPL
10 witness Tindell, CTs with improved characteristics should such technology
11 become available) state-of-the-art advanced combined cycle units, one at
12 CCEC, with a net summer peak rating of 1,219 MW, and another at RBEC,
13 with a net summer peak rating of 1,207 MW, and each with a base operating
14 heat rate of about 6,580 Btu/kWh. These new combined cycle units will use
15 natural gas as the primary fuel, and will be capable of using light fuel oil as
16 backup fuel. The conversion of these two existing plants will result in a net
17 system capacity (summer) increase of about 1,069 MW, but there would be no
18 increase in steam generation. This total net system capacity increase
19 (compared to the total generating capacity in FPL's system before the existing
20 Canaveral and Riviera plants are removed from service) is comparable to that
21 provided by a new 3x1 G combined cycle unit. This cleaner, high efficiency
22 conversion of Canaveral and Riviera would remove the existing plants from
23 service by 2010 and 2011, respectively. The new converted CCEC would

1 return to service by June of 2013; the new converted RBEC would return to
2 service by June of 2014.

3 **Q. What advantages do the cleaner, high efficiency conversions of existing**
4 **FPL plants provide, compared to adding a new generating unit to FPL's**
5 **system in 2014, without making any changes to the existing generation**
6 **portfolio?**

7 A. The principal advantage of FPL's proposed plant conversions is that, in
8 addition to providing 1,069 MW of net new, system capacity to maintain
9 system reliability, these cleaner, high efficiency plant conversions also
10 transform existing, low efficiency steam generation into new, highly efficient,
11 low emission, gas-fueled, advanced combined cycle generation. In effect,
12 these conversions will replace about 1,357 MW of inefficient steam
13 generation with 2,426 MW of highly efficient combined cycle generation.

14
15 As a result, this cleaner, high efficiency conversion plan will reduce system
16 emissions of CO₂, SO₂ and NO_x, reduce fuel use, and produce very significant
17 fuel cost savings, and large overall savings to FPL's customers.

18 **Q. Has FPL quantified the magnitude of the reduced emission advantage of**
19 **the plant conversions?**

20 A. Yes. FPL has compared the emissions of its Resource Plan with Conversion to
21 those of a Resource Plan without Conversions. The results of this comparison
22 indicate that during the projected life of the converted CCEC and RBEC, the
23 Resource Plan with Conversions will reduce system CO₂ emissions by as

1 much as 15.7 million tons compared to the “no conversions” plan. As a result,
2 this cleaner, high efficiency conversion plan will contribute significantly
3 toward meeting the CO₂ emission targets reflected in the Governor’s
4 Executive Order 07-127, and whatever specific legal requirements may be
5 implemented in the future regarding CO₂ emissions as a result of that Order or
6 pursuant to federal or state law. Also, as is presented in Exhibit SRS-7
7 attached to the testimony of FPL witness Sim, the conversion of Canaveral
8 and Riviera will reduce SO₂ emissions by about 60,300 tons, and NO_x
9 emissions by 55,300 tons in that same period.

10 **Q. Could the Canaveral and Riviera conversions actually result in FPL**
11 **being able to fully comply with those CO₂ emission requirements?**

12 A. The conversions of Canaveral and Riviera clearly will make a major
13 contribution towards achieving compliance with any future laws and
14 regulations related to CO₂ emissions, and do so in a highly cost-effective way
15 for FPL’s customers. However, determining actual compliance will depend on
16 the specific framework and legal requirements that are adopted by the state or
17 federal governments with respect to CO₂ emissions.

18 **Q. Has FPL quantified the reduction in fuel use that will result from the**
19 **plant conversions?**

20 A. Yes. FPL has compared the amounts of natural gas and fuel oil used in FPL’s
21 system under the Resource Plan with Conversion to those under a Resource
22 Plan without Conversions during the period 2013 through 2017. As is
23 presented in Exhibit SRS-9 attached to the testimony of FPL witness Sim, the

1 results of this comparison indicate that in 2013 through 2017 the Resource
2 Plan with Conversions will reduce natural gas use by about 10.6 million
3 MMBtu compared to the “no conversions” plan. Fuel oil use will also be
4 reduced by about 7.5 million barrels. Reducing oil and gas use is a very
5 important benefit to FPL’s customers because of the projected high cost of
6 natural gas and fuel oil in the future, and further because of the risk that actual
7 fuel costs in the future could be even higher than projected.

8 **Q. How did system costs with the proposed conversions of Canaveral and**
9 **Riviera compare with those with the other self-build alternative?**

10 A. FPL determined that the proposed conversions of Canaveral and Riviera in
11 2013 and 2014, respectively, would result in significant savings to its
12 customers. Specifically, the proposed plant conversions result in system
13 savings of \$457 million (CPVRR) compared to adding a new 3x1 G CC in
14 2014. FPL witness Sim’s testimony discusses the evaluation in detail. The
15 result of this evaluation, combined with the other significant advantages of the
16 proposed plant conversions, demonstrate that the conversion of Canaveral and
17 Riviera by 2013 and 2014, respectively, is the best, most cost-effective
18 alternative, as part of FPL’s strategy to meet its customers’ resource needs
19 through 2017.

20 **Q. Did FPL perform any sensitivity analysis regarding the economic benefit**
21 **of the proposed plant conversions?**

22 A. Yes. FPL determined that the savings of the Resource Plan with Conversions
23 would increase to \$890 million (CPVRR) if environmental compliance costs

1 were to be at the high end of FPL's range of possible outcomes, even with no
2 change in fuel prices. FPL also determined that the savings of the Resource
3 Plan with Conversions would increase further to \$1,221 million (CPVRR) if
4 both environmental compliance costs and gas prices were to be at the high end
5 of FPL's range of possible outcomes. This is a very clear indication that in
6 addition to providing significant savings to FPL's customers based on current
7 forecasts, the proposed plant conversions also provide a very effective hedge
8 against higher natural gas prices and or higher environmental compliance
9 costs in the future.

10 **Q. Do the conversions of Canaveral and Riviera provide any other benefits?**

11 A. Yes. The conversions of Canaveral and Riviera provide benefits that are
12 unique, in that they could not be obtained by any other resource alternative.
13 Specifically, these conversions will enable FPL to increase system capacity,
14 which is necessary to continue to provide reliable service to its customers,
15 increase system fuel efficiency and reduce system emissions, including CO₂
16 emissions, without using any additional land, without increasing the water
17 allocated to FPL's use, and without the need for new rights-of-way for
18 transmission lines. In addition, because CCEC and RBEC will have the
19 capability of receiving light oil delivered using waterborne transportation,
20 these new generation facilities will have much greater backup fuel supply
21 reliability than any similar facility located away from the coast where the
22 supply of light oil would be limited exclusively to what could be delivered by
23 truck.

1 **Q. Have you calculated the cost difference to FPL's customers of adding**
2 **WCEC 3 in 2011 and converting Canaveral and Riviera versus a plan**
3 **that delays the 2011 capacity addition until 2013 and adds another new**
4 **3x1 G combined cycle unit in 2014 instead of the plant conversions?**

5 A. Yes. FPL's resource plan with both the addition of WCEC 3 in 2011 and the
6 conversions of Canaveral and Riviera by 2013 and 2014, respectively, will
7 result in savings to FPL's customers of more than \$1,190 million (CPVRR),
8 compared to a plan that would delay the 2011 capacity addition to 2013 and
9 not convert Canaveral and Riviera. These combined savings of WCEC 3 in
10 2011 and the plant conversions would be even greater if environmental
11 compliance costs were to be greater than projected, and/or if natural gas prices
12 were to be higher than projected.

13 **Q. Is the approval of the conversions of Canaveral and Riviera necessary for**
14 **the Commission also to approve WCEC 3?**

15 A. No. As discussed at length in the testimony and materials submitted in
16 connection with the Company's request for a determination of need, WCEC 3
17 in 2011, on its own, will result in very significant savings to FPL's customers,
18 as well as provide emission reductions that benefit all the citizens of Florida.
19 In fact, FPL's analyses performed as part of its need determination filing for
20 WCEC 3 in 2011 indicate that, independent of the conversions of Riviera and
21 Canaveral, a resource plan that includes WCEC 3 in 2011 will reduce costs to
22 customers by \$460 million (CPVRR) and at the same time reduce emissions,
23 compared to delaying the new 3X1 G CC unit addition until 2013. Therefore,

1 while the addition of WCEC 3 in 2011 does enable the conversions of
2 Canaveral and Riviera, it should be approved on its own, based on the very
3 significant benefits it provides to FPL's customers, and not be contingent on
4 the approval or implementation of the proposed conversion projects.

5

6 V. EVALUATION OF PLANT CONVERSIONS VS. MARKET

7 PROPOSALS

8

9 **Q. Has FPL evaluated the proposed conversion of Canaveral and Riviera**
10 **relative to market alternatives?**

11 A. Yes. In addition to performing the economic analysis described in the
12 testimony of FPL witness Sim, which compared the Resource Plan with
13 Conversions, including the proposed conversions of Canaveral and Riviera,
14 against the Resource Plan without Conversions, FPL also compared the
15 Resource Plan with Conversions to resource plans that include market
16 proposals instead of the plant conversions.

17

18 Specifically, FPL witness Taylor of Sedway Consulting compared FPL's
19 Resource Plan with Conversions to resource plans that include the addition of
20 new purchased power in 2013 and 2014 in place of FPL's proposed plant
21 conversions. The purchased power reflected in these resource plans is based
22 on three proposals received by FPL in February of 2008.

1 **Q. What is the source of the market proposals used in the evaluation**
2 **performed by Sedway Consulting?**

3 A. FPL witness Taylor of Sedway Consulting utilized proposals received by FPL
4 on February 15, 2008, in response to the request for proposals issued by FPL
5 in December of 2007. These proposals offered new capacity beginning in
6 2011 and 2012. However, for the purpose of this evaluation, Sedway
7 Consulting assumed that the power purchase agreement related to these
8 proposals would commence in 2013 and/or 2014, respectively, consistent with
9 the timing of the proposed plant conversions.

10 **Q. How did the alternate resource plans utilizing the market proposals**
11 **compare to the Resource Plan with Conversions?**

12 A. As shown in the testimony of FPL witness Taylor, the resource plan
13 developed using the lowest cost market proposal was more than \$480 million
14 (CPVRR) more costly than the Resource Plan with Conversions. All other
15 market alternatives were between \$790 million and \$870 million more costly
16 than the plant conversions. This result confirms that the conversion of
17 Canaveral and Riviera by 2013 and 2014, respectively, provides a far more
18 economic resource plan than can be achieved with the market proposals
19 received in February 2008.

1 **Q. Did the market proposals received in February 2008 provide any non-**
2 **economic advantages compared to the conversions of Canaveral and**
3 **Riviera?**

4 A. No. As stated earlier in this testimony, the proposed Canaveral and Riviera
5 plant conversions result in improved system fuel efficiency, reduced
6 emissions and reduced oil and gas use. In addition, the plant conversions
7 enable FPL to increase system capacity to meet its customers' needs without
8 using any additional land or water resources, and without the need for new
9 transmission rights-of-way. The converted CCEC and RBEC also provide the
10 option to deliver backup fuel via waterborne transport. Only one of the
11 generating units proposed in response to FPL's RFP provides waterborne fuel
12 delivery.

13 **Q. FPL has asked for exemptions from the Bid Rule for the Canaveral and**
14 **Riviera conversion projects. Why is it not necessary to require FPL to**
15 **issue another request for proposals to solicit new bids that would now**
16 **compete against the proposed conversions of Canaveral and Riviera?**

17 A. There are four key reasons. First, the proposed conversions of Canaveral and
18 Riviera provide a means of significantly reducing emissions of CO₂, and do so
19 at a significant savings compared to the cost of adding only new generation.
20 The conversions of Canaveral and Riviera provide the magnitude of net
21 capacity addition necessary to meet the reliability needs of FPL's customers
22 and, through cleaner, high efficiency generation, reduce CO₂ emissions
23 sufficiently to make a very substantial contribution to meeting any future CO₂

1 emission requirement that may be imposed by federal or state law. This
2 combination results in a cost-effective, high system reliability solution to the
3 CO₂ emission challenge that, as explained below, is unique.

4
5 Second, time is of the essence. FPL must be certain that it can proceed with
6 the proposed plant conversions at the selected locations. The only way to have
7 this certainty is for FPL to have obtained all the necessary approvals and
8 permits to implement the plant conversions at Canaveral and Riviera. At
9 present there is broadly expressed local interest in proceeding with the
10 proposed conversions of Canaveral and Riviera, so it is very important that we
11 proceed expeditiously to secure all the approval and permits for these projects
12 in order to ensure their success and maximize their benefits to FPL's
13 customers. In addition, FPL must complete this approval and permitting
14 process sufficiently early to ensure that, if approvals and permits for the
15 conversions of Canaveral and Riviera are not granted, there would still be
16 time for FPL first to identify, then select from among the best available, other
17 strategies that could achieve the necessary CO₂ emission reductions, and
18 obtain the approvals and permits necessary to implement such strategy and
19 still be in a position to comply with the CO₂ emissions limit in 2017.

20
21 Third, as indicated above, converting existing steam generation at the
22 Canaveral and Riviera plants to advanced combined cycle generation will
23 enable FPL to increase system generation capacity to meet the reliability

1 needs of FPL's customers, significantly reduce system costs, and increase
2 system efficiency and reduce fuel use, while at the same time reducing
3 emissions, including CO₂ emissions, all without dedicating new land to plant
4 use, and without increasing the allocated use of Florida's water resources. The
5 Canaveral and Riviera conversions would also avoid the need to acquire new
6 rights-of-way for transmission facilities. By contrast, any proposal that would
7 offer to build the large, efficient generation facility that would be necessary to
8 reduce system CO₂ emissions would require a new plant site, and new
9 transmission rights of way, and it would require the commitment of new water
10 resources.

11

12 In addition, the Canaveral and Riviera plants have the capability of receiving
13 light oil delivered by waterborne transport. Conversely, a new inland
14 generation facility would have to be supplied fuel oil exclusively by truck.
15 This gives the conversion of Canaveral and Riviera a significant advantage in
16 that having the option to effect delivery of backup fuel by waterborne
17 transport makes the FPL system much more reliable than would be the case if
18 FPL were to rely exclusively on truck transportation.

19

20 These are very important advantages in favor of the proposed plant
21 conversions, because they help reduce the impact that generation additions
22 will have on the communities where they are located, as well as on the entire
23 state of Florida. Proposals that could be submitted in response to a request for

1 proposals could not provide comparable advantages to FPL's customers and
2 would therefore be found lacking when compared to the proposed plant
3 conversions.

4
5 Fourth, the response to FPL's recent request for proposals (RFP) is an
6 indication of an apparent reluctance on the part of the independent supplier
7 market to take the risk associated with providing to FPL the type of new,
8 sufficiently large, highly efficient generation facilities that would be necessary
9 to both significantly reduce CO₂ emissions and deliver firm electricity to FPL
10 at specified, competitively low base prices. Specifically, in late 2007 FPL
11 solicited bids to provide new capacity by June of 2012, to compete with its
12 selected self-build unit (WCEC 3), a large, very efficient advanced combined
13 cycle unit that will cost-effectively and significantly reduce CO₂ emissions.
14 FPL emphasized its concern with reducing CO₂ emissions. This RFP gave
15 bidders an opportunity to propose a similar, large, highly efficient competitive
16 unit. Yet FPL only received three proposals, all based on existing, less
17 efficient facilities. One proposal was for a 3-year power purchase from an
18 existing oil-burning, inefficient steam plant. The other proposals consisted of
19 converting two existing CTs to a 2x1 F combined cycle unit. None of these
20 proposals can contribute the size and increased efficiency necessary to
21 meaningfully reduce CO₂ emissions in FPL's system. Although in prior
22 solicitations FPL received proposals based on larger generating units, these
23 proposals were significantly more expensive than FPL's self-build option.

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Florida Power & Light Company's Petition to determine need for West County Energy Center Unit 3 electrical power plant. | DOCKET NO. 080203-EI

In re: Florida Power & Light Company's Petition for determination of need for conversion of Riviera Plant in Palm Beach County. | DOCKET NO. 080245-EI

In re: Florida Power & Light Company's Petition for determination of need for conversion of Cape Canaveral Plant in Brevard County. | DOCKET NO. 080246-EI
Filed: June 19, 2008

ERRATA SHEET

DIRECT TESTIMONY OF RENE SILVA; DOCKETS 080245-EI and 080246-EI

<u>PAGE #</u>	<u>LINE #</u>	<u>CORRECTION</u>
7	7	Change "conversion" to "conversions"
12	5	Delete "significant"
15	2 and 5	Change "conversion" to "conversions"
18	23	Delete "mercury (Hg)"
28	18	Insert "even" immediately before "commonly"
29	1	Insert "commonly occurring" before "differences"
29	6	Insert "such commonly occurring" immediately before differences
33	16	Bold "7.3"
33	17	Change "three-year" to "four-year"
54	21	Delete "the"

<u>PAGE #</u>	<u>LINE #</u>	<u>CORRECTION</u>
Exhibit RS-4	Pg 1 of 2, header, 2 nd line	Change "Operations with No WCEC 3 Nor Plant Conversions" to "Operations with 15 % Reserve Margin"
Exhibit RS -4	Pg 2 of 2, header, 2 nd line	Change "Operations with WCEC 3 and Conversions of Canaveral and Riviera" to "Operations with 20% Reserve Margin"

1 BY MR. ANDERSON:

2 Q Mr. Silva, have you prepared a summary of your
3 testimony with respect to West County 3 and the conversion
4 projects?

5 A Yes, I have, Mr. Anderson.

6 Q Please provide your summary to the Commission.

7 A Good morning, Chairman Carter, Commissioners. Thank
8 you for this opportunity to summarize my testimony.

9 FPL requests that the Commission grant affirmative
10 determinations of need for the addition of West County 3 in
11 2011 and for the conversions of the Cape Canaveral and Riviera
12 plants to be completed in 2013 and 2014 respectfully. The new
13 generation capacity to be provided by these three generation
14 projects is necessary for FPL to continue to provide reliable
15 service. But what sets the resource plan with these
16 three projects apart from other alternatives is that this plan
17 will result in savings of about \$1.2 billion cumulative present
18 value revenue requirements to FPL's customers when we compare
19 them to alternative resource plans that FPL considered,
20 including resource plans that reflect market bids submitted in
21 response to FPL's recent request for proposals.

22 In addition to the cost savings, this resource plan
23 will enable FPL to reduce carbon dioxide emissions by almost
24 18 million tons during the lives of these plants. In fact,
25 system fuel efficiency improvements achieved due to those

1 projects is the only way that FPL can see to significantly
2 reduce CO2 emissions until the time when the new nuclear
3 generating units are added to FPL's system in 2018. Therefore,
4 these projects are necessary to enable FPL to meet any CO2
5 emission limits that may be imposed in Florida or through
6 federal law or regulation. This plan will also result in
7 reduced emissions of sulfur dioxide and nitrogen oxide.

8 All projected cost-effective demand-side management
9 additions and all reasonably available renewable resources have
10 already been reflected in the resource plan that FPL has
11 utilized. In fact, by 2017 demand-side management will have
12 enabled FPL to avoid almost 6,300 megawatts of generating
13 capacity. That is equivalent to 21 percent of all FPL-owned
14 generation projected for that time.

15 And FPL will continue to pursue renewable resource
16 opportunities, both purchased and self-built. However, DSM and
17 renewable resources will not be sufficient to meet FPL's future
18 needs by themselves. Even after all projected DSM and
19 renewable resource increases, and after all previously approved
20 capacity additions, FPL will need more than 4,800 megawatts of
21 new generating capacity in the years 2011 through 2017.

22 West County 3 and the plant conversions will meet
23 almost 2,300 megawatts of that 4,800 resource need, but that
24 leaves still another 2,500 megawatts of additional capacity.
25 Therefore, to the extent that additional viable renewable

1 resources and/or additional cost-effective demand-side
2 management is identified in the future, FPL will definitely be
3 in a position to implement those alternatives to satisfy all or
4 part of that remaining need without diminishing either the need
5 for nor the benefits provided by West County 3 and the plant
6 conversions.

7 We recognize that due to currently existing
8 volatility regarding the number of market drivers that affect
9 plant construction, there is some uncertainty regarding the
10 capital cost of the conversions. However, those market drivers
11 will also affect the capital cost of any generation capacity
12 alternatives to which these conversions have been compared or
13 could reasonably be compared. Therefore, the projected savings
14 due to the conversions will be preserved as will all the other
15 benefits, such as emission reductions.

16 In summary, the Commission should grant affirmative
17 determinations of need for West County 3 in 2011 and the
18 conversions of the Cape Canaveral and Riviera plants in 2013
19 and 2014 respectively, because these capacity additions are
20 needed to maintain system reliability in the future, and
21 because together these projects constitute by far the best most
22 cost-effective plan to meet FPL's customers resource needs and
23 the only means of effectively reducing emissions, including CO2
24 emissions in this period.

25 Thank you.

1 **CHAIRMAN CARTER:** Thank you.

2 **MR. ANDERSON:** Mr. Silva is available for questions.

3 **CHAIRMAN CARTER:** Staff, you're recognized.

4 **MS. BROWN:** We have no questions.

5 **CHAIRMAN CARTER:** Commissioners?

6 Commissioner Skop, you're recognized.

7 **COMMISSIONER SKOP:** Thank you, Mr. Chairman. Mr.

8 Silva, good morning.

9 **THE WITNESS:** Good morning, Commissioner Skop.

10 **COMMISSIONER SKOP:** Just some quick questions.

11 Again, I think my concern is with respect to the proceeding.

12 They don't necessarily center around technical or fuel savings,

13 or environmental benefits, but they are more related to the

14 process itself and making sure that we properly go through the

15 motions and vet the process to uphold the public trust and

16 confidence of doing our job.

17 With respect to your testimony regarding the
18 conversion projects, just as an initial question, those are
19 being discussed as a repowering, but typically what they are is
20 more of a complete demolition and replacement with a complete
21 new generating unit, not just leaving the existing steam
22 turbine, is that correct?

23 **THE WITNESS:** Yes. There is some small component of
24 the plant that will remain that Ms. Tindell can explain in
25 detail, but by and large what you say is correct.

1 **COMMISSIONER SKOP:** Thank you.

2 And the other questions that I had -- and give me one
3 second. I guess with respect to the proposal for the cost
4 savings, and, again, the cumulative present value revenue
5 requirement shows at least a cost savings that will result for
6 doing the three projects as a whole of about 457 million. I
7 think that data may have been tweaked a little bit, is that
8 correct?

9 **THE WITNESS:** Actually, Commissioner, just to be
10 clear, the 457 million savings is for the conversion projects
11 by themselves, having assumed that West County 3 has been
12 placed in service in 2011. If we were to compare the three
13 projects to not doing West County 3 in 2011, but, say,
14 deferring it to 2013, and not doing the conversions, the
15 savings would be \$1.2 billion.

16 **COMMISSIONER SKOP:** Thank you.

17 And on Page 9 of the prefiled testimony for the
18 conversion projects, they mentioned that one of the benefits is
19 the improvement in FPL's system average heat rate. And I
20 believe that would result in about 1 percent -- just over
21 1 percent benefit in your heat rate which would translate into
22 reduced fuel consumption costs, is that correct?

23 **THE WITNESS:** Yes, Commissioner. As a matter of
24 fact, I did a calculation looking at the fuel costs in 2008,
25 and, roughly speaking, a 1 percent improvement in heat rate

1 would be equivalent to a savings of \$68 million in fuel costs.

2 **COMMISSIONER SKOP:** Okay. And on Page 10 of your
3 prefiled testimony for the conversions it speaks to the
4 economic analysis results of the proposed plants conversion
5 already reflect the fact that the costs related to land, to
6 access to transmission and water are significantly lower than
7 having to go to a whole complete new site because you are able
8 to use existing infrastructure of the existing plants, is that
9 correct?

10 **THE WITNESS:** Yes, Commissioner.

11 **COMMISSIONER SKOP:** And then also, too, on Page 11 it
12 speaks to the fact that one of the, I guess, perceived benefits
13 of using an existing facility is that it already has an
14 adequate backup fuel supply capability in terms of waterborne
15 transport, is that correct?

16 **THE WITNESS:** Yes. We will have the option to
17 deliver fuel by waterborne transportation.

18 **COMMISSIONER SKOP:** Okay. And, I guess, on Page 16
19 of prefiled testimony it discussed about the type of equipment
20 to be used for the conversions, and I believe it states that
21 they are looking to use a G-type combustion turbine, but is
22 reserving or requesting that the Commission give FPL the
23 additional flexibility of being able to choose whatever turbine
24 technology they want to use. At least for the conversion
25 projects, you haven't specifically locked down definitively the

1 type of turbine. I mean, I know that you have hold us what you
2 want to use, but you want that flexibility, is that correct?

3 **THE WITNESS:** Yes, Commissioner. We have done all
4 the analysis assuming that the G designed turbine would be
5 used. We are looking at other designs that may make it more
6 cost-effective, even, than these benefits, and we will make the
7 decision when we have that information. And, of course, as we
8 indicated here we will share that information with the
9 Commission at that time.

10 **COMMISSIONER SKOP:** Okay. And as a follow-up to that
11 question, specifically if they were to pick a new turbine
12 technology, say, for instance, be the launch customer for GE's
13 H Series turbine, which certainly could offer some cost savings
14 and performance efficiencies and improvements over existing
15 technology, as well as emissions, what would happen and what
16 would be done to adequately protect the ratepayers, for
17 instance, if they were the launch customer for turbine
18 technology and this flexibility that is requested is granted by
19 the Commission to protect the ratepayers from availability?

20 For instance, when you have new technology sometimes
21 it takes awhile to get the bugs, or components fail, or what
22 have you. So, for instance, if we were to move forward with a
23 new turbine technology based on things, how would the
24 ratepayers be protected? Would they be protected contractually
25 in terms of performance guarantees?

1 **THE WITNESS:** That would be the first line, of
2 course, and it would be part of the decision-making process.
3 In other words, we would not take a new type of design based on
4 just advertised performance without the appropriate guarantee.
5 So that would be a critical aspect of the decision itself.

6 In addition to that, of course, we would put in the
7 appropriate measures with the training, maintenance, and all of
8 those measures that would ensure that the performance that has
9 been advertised will, in fact, be carried out.

10 **COMMISSIONER SKOP:** Thank you. And let me review
11 some of the other questions that I briefly had.

12 On Page 43 of your prefiled testimony, I guess you
13 were asked the question is approval of the conversions of
14 Canaveral and Riviera necessary for the Commission also to
15 approve West County 3. And I believe that the answer to your
16 question was no, is that correct?

17 **THE WITNESS:** That is correct.

18 **COMMISSIONER SKOP:** And I guess my understanding is
19 that the three plants are separate and distinct, is that
20 correct?

21 **THE WITNESS:** Yes, the three are separate and
22 distinct. I may want to clarify something. As you correctly
23 characterized the question and the answer, the conversions are
24 not necessary in order to do West County 3, but the inverse is
25 not true. In other words, we do need West County 3 in order to

1 do the conversations.

2 **COMMISSIONER SKOP:** Right. And that is the point I
3 was trying to make is that the West County 3, granting the
4 determination of need for that project would lay the foundation
5 to facilitate the conversion of the other two plants at a later
6 date, which could not be accomplished without approval of West
7 County 3 to the extent that you wouldn't have adequate
8 reliability numbers.

9 **THE WITNESS:** That's correct, Commissioner.

10 **COMMISSIONER SKOP:** All right. And, I guess, getting
11 to the end of my questioning, on Page 46 of the prefiled
12 conversion testimony. Again, it articulates some of the
13 benefits that would arise from using existing sites for the
14 conversion to the extent that although you are doing a complete
15 demolition not using any of the existing hardware or retaining
16 the steam turbine, but putting in complete new systems, you are
17 also leveraging not having to use additional land or water
18 resources, additional transmission rights-of-way, because those
19 already exist in terms of the switchyard and such, and also the
20 ability to have that waterborne fuel delivery option as a
21 back-up.

22 **THE WITNESS:** Yes, Commissioner. And, in fact, it is
23 those features that in addition to the fuel savings and the
24 emissions reductions make these particular opportunities
25 unique, that cannot really be replicated by any other

1 alternative.

2 **COMMISSIONER SKOP:** Okay. And then finally on Page
3 46 of the prefiled testimony, it states that FPL has asked for
4 exemption from the bid rule for the Canaveral and Riviera
5 conversion projects, and why would it not be necessary to
6 repeat the RFP. I just want to make it crystal clear, because,
7 again, I read the staff's positions, initial positions, but an
8 RFP was performed solely for the WCEC 3 project and not for the
9 conversion projects.

10 **THE WITNESS:** That is correct. It was issued to
11 compete against the West County 3. Through our analysis we
12 also applied those results to --

13 **COMMISSIONER SKOP:** I understand. The point that I'm
14 trying to flesh out and articulate to make sure that we know,
15 because, again, the Commission can justify anything, it's just
16 a matter of making sure that we go through the proper steps and
17 have written documentation to justify a basis for our decision.
18 And it seems to me, and I think Mr. Taylor's testimony will get
19 into this, apparently my understanding of what they did, and,
20 again, it wasn't very clear in terms of the staff initial
21 position, was that they took the WCEC 3 request for proposal
22 which was submitted pursuant to the bid rule for the WCEC
23 3 project, and they basically used that as a proxy to avoid
24 repeating the RFP process on the conversion process, is that
25 correct?

1 **THE WITNESS:** Yes, in part. I would say we did it in
2 order to -- as a proxy, as you say, but separate from that we
3 felt that even without having done that, these conversion
4 alternatives are so unique that in and of itself that would
5 merit an exemption from the bid rule. But, as you say, yes,
6 for completeness we also applied what the market was telling us
7 was the alternatives.

8 **COMMISSIONER SKOP:** Okay. And that gets into my
9 question, I guess, the crux of my question. Again, I think
10 Mr. Taylor's testimony, and, again, I think he explained it a
11 little bit better, and it lit a -- you know, a light bulb went
12 off for me. But at least on the exemption of the bid rule, I'm
13 familiar with the analysis there. Just the explanation that
14 was contained in the response to that question kind of threw me
15 a little bit, because, you know, they state some of the
16 environmental benefits, you know, on face. Without looking at
17 the bid rule, one would say, well, what does that have to do
18 anything with not having to go repeat a process that, you know,
19 other utilities are currently engaged in for, you know, a
20 project coming into service at the same time frame.

21 But, secondly, time is of the essence, and I think
22 that is the one that I had a little bit of concern with,
23 because it is my understanding that FPL has filed a site
24 certification for West County 3 already with the DEP, is that
25 correct?

1 **THE WITNESS:** For West County 3?

2 **COMMISSIONER SKOP:** Yes.

3 **THE WITNESS:** Yes.

4 **COMMISSIONER SKOP:** Okay. But it has not done so for
5 Canaveral or Riviera, is that correct?

6 **THE WITNESS:** That is correct. And part of the
7 reason for that, as we say, we are still trying to fine-tune
8 the equipment that will be used at that unit.

9 **COMMISSIONER SKOP:** Okay. And in terms of the cost
10 of the project, and, again, I don't have my notes here that I
11 took on a separate sheet, but the cost are definitized, and I
12 think that Witness Tindell, I think I'll get to that, and she
13 is probably the most appropriate witness. But, again, not
14 definitizing the cost, again, one of the concerns I have, and,
15 again, they don't really relate to the technology or to the
16 fuel savings or to the environmental benefits, but making sure
17 that, you know, ratepayers receive good value for what we are
18 doing here in terms of the costs and not being able to fully
19 definitize the generating technology at the time that need
20 determination is granted.

21 I mean, that is not necessarily a fatal flaw to me,
22 but, again, certainly FPL states that it wants to do the
23 analysis on the cumulative present value revenue requirements
24 to ensure that there was still good value to the consumer. I
25 mean, the low-end analysis on a stand-alone basis for the

1 conversion seem kind of low. For instance, if you had
2 tremendous cost overruns, or tremendous difference in terms of
3 turbine type technology, I mean, that could kind of come down
4 to where it may be marginal. But my concern is, again, making
5 sure that we have a good accurate definitization of what the
6 costs are going to be, particularly in light of the fact that
7 we are on an accelerated process to grant the approvals, and
8 there are some other additional concessions being asked for.

9 But I think from what I'm hearing from you is that
10 the cost analysis at the appropriate time, should the
11 technology change, would be rerun to show that there is a
12 positive cumulative present value revenue requirement in terms
13 of if alternate technology would be selected.

14 **THE WITNESS:** That is definitely our intent before a
15 final decision is made.

16 **COMMISSIONER SKOP:** Thank you. No further questions.

17 **CHAIRMAN CARTER:** Thank you.

18 Commissioner Argenziano, you're recognized.

19 **COMMISSIONER ARGENZIANO:** Thank you. If you would
20 forgive me, I'm not sure if you can answer all of these
21 questions, and you may want to advise me of a better witness to
22 ask, or a witness who is more appropriate to ask.

23 **THE WITNESS:** I will try to answer to the best of my
24 ability, and then I will point you in the right direction.

25 **COMMISSIONER ARGENZIANO:** Okay, thank you. I

1 appreciate that.

2 I guess in very basic terms, the reason that FPL is
3 looking for the conversion of the plants is for, one, the
4 reduction of the CO2 that the state policy is moving in, and,
5 secondly, for the future capacity, the needs of the area.

6 **THE WITNESS:** Yes. If I could explain. In our
7 process we first, of course, identified the need for additional
8 resources to continue to serve reliably, and then we look at
9 how much cost-effective demand-side management can take care of
10 that resource need, which we have done. Then we look at what
11 alternatives do we have for the future. And we evaluate them
12 from the cost perspective, as you mentioned, as well as the
13 environmental impact.

14 In the case of the conversions in this case, it isn't
15 the first time that we have looked at these types of
16 conversions. In fact, we did it at our Lauderdale plant, our
17 Fort Myers plant, and our Sanford plant. They were all old
18 units. They were converted into new combined cycle units very
19 cost-effectively. But it had been some time before the
20 analysis showed that doing so was going to be cost-effective
21 for our customers. Now, with the higher fuel prices and the
22 prospect of higher environmental costs, it becomes
23 cost-effective again to do so, and that is why it is a great
24 opportunity at this time to proceed with those conversions.

25 **COMMISSIONER ARGENZIANO:** Okay. And to that point,

1 when will savings be realized by the consumers?

2 **THE WITNESS:** If I could defer that question to
3 Doctor Sim, who will have the detail as to the cost over time.
4 There is, of course, the capital cost up front, and the savings
5 will largely come during operation of the plant saving fuel and
6 saving emission costs. But I don't remember exactly when that
7 crossover occurs, but I believe that is fairly early in the
8 first couple of years of operation.

9 **COMMISSIONER ARGENZIANO:** Okay. We will also leave
10 that for Doctor Sim. May I just alert staff that -- I won't
11 ask them at this time, it is not appropriate, but I would like
12 them to address this in the post-hearing, some of these
13 questions that I'm going to be asking.

14 Great. I guess the second part of that question
15 would be, I guess, what is the life expectancy of the current
16 plants?

17 **THE WITNESS:** Without changing them you're saying?

18 **COMMISSIONER ARGENZIANO:** Yes.

19 **THE WITNESS:** In reality, we essentially stretch them
20 out by doing the appropriate maintenance so that we don't have,
21 absent this conversion, a retirement date for any of them at
22 this stage. So I would anticipate that absent this change,
23 they would be in operation for at least another 10 or 15 years.

24 **COMMISSIONER ARGENZIANO:** And on the existing plants,
25 what would it take to -- or is there anything you could do to

1 reduce the CO2 levels and the other pollutants, additional
2 scrubbers or additional mechanisms that could make them less
3 polluting and at what cost?

4 **THE WITNESS:** There is no existing equipment that
5 will reduce CO2 to my knowledge that then is not subsequently
6 released to the atmosphere.

7 **COMMISSIONER ARGENZIANO:** I don't mean totally. I
8 mean, is there anything you could do to reduce the current
9 pollutants from those plants?

10 **THE WITNESS:** From the plants that exist now that
11 are, say, the older plants, other than something like the
12 conversion that we are planning now, indirectly by -- as you
13 add more efficient generation into our system that typically is
14 used every day before the older more costly units are used, you
15 reduce generation megawatt hours produced by those old units.
16 And by doing so you operate them less and, therefore, you
17 reduce the amount of carbon dioxide that is emitted.

18 In fact, that is what is happening here. What we are
19 talking about is not simply that we are taking two old units
20 and refurbishing them so that they emit less. But now because
21 they are so efficient, they run very much more and they back
22 down other units that would typically be ahead of those. Those
23 old units emit more CO2, so by backing them down we
24 significantly reduce the emissions. And when we are talking
25 about the 18 million tons of CO2 that we are going to reduce,

1 it is for the system overall as a result of adding West County
2 3 and the conversions.

3 **COMMISSIONER ARGENZIANO:** The question I'm asking,
4 let's say the federal government today said we are going to
5 change the amount of levels of pollutants that you can have out
6 of a coal plant. Is there available today different scrubbers
7 or different mechanical -- any kind of mechanism that you could
8 use to reduce the current -- not eliminate, but reduce the
9 current pollutants that come out of those coal plants?

10 **THE WITNESS:** On a rate basis, there are ways of
11 capturing CO2, and I think that Mr. Gnecco can probably give
12 you chapter and verse on that. But the challenge that still
13 exists is once you have captured that CO2, what do you do with
14 it? And in some locations it is being used to pipe, if you
15 will, to help in the production of oil. In Florida there is
16 some investigation going on as to what can be done with it, but
17 I don't think we are anywhere close coming up with an answer to
18 that.

19 **COMMISSIONER ARGENZIANO:** Okay. And the other
20 question, since we do in our mission statement have to think
21 about the efficient provision of safe and reliable utility
22 services at fair prices, the safety issue that the consumers
23 raised, 290 feet next to explosives and so on, have you
24 addressed that?

25 **THE WITNESS:** I can't tell you about the distance,

1 Commissioner. Again, John Gnecco would be the person that can
2 tell you exactly what is happening with that regard. My
3 understanding is that all the local, state, and federal
4 regulations that require certain safety measures are, of
5 course, being observed. And that there has never been a time
6 when the safety of FPL's employees or the public have not been
7 at the forefront of FPL's interests. So you can be assured
8 that FPL is doing everything that will be necessary to ensure
9 safe operation of that plant both for our employees and for the
10 public.

11 **COMMISSIONER ARGENZIANO:** Well, then Mr. Gnecco could
12 more specifically address being close to an area with
13 explosives and a pipeline and the possibilities of anything, as
14 the consumers had mentioned?

15 **THE WITNESS:** Yes.

16 **COMMISSIONER ARGENZIANO:** Okay. I will ask
17 Mr. Gnecco. Also, was the number 1/10th of one percent that
18 the public -- the two ladies who had testified before us for
19 alternatives, is that correct, is it only 1/10th of one percent
20 that FPL is putting into alternatives?

21 **THE WITNESS:** At present the renewable resources that
22 we use have varied from year to year. And never, to my
23 recollection, exceeded one or two percent. And depending on
24 the year, it may well be less than one percent.

25 Just to put things in perspective, last year in April

1 we issued a request for proposals requesting bids for renewable
2 generation from anybody through a period all the way out to
3 2015. We received bids that totalled only 126 megawatts worth
4 of capacity. As it turned out, the cost of those proposals
5 were significantly higher than our, in quotations, avoided
6 costs, meaning the cost that we would incur even at the peak
7 under normal circumstances. And under present regulation and
8 legislation, we cannot pass on to our customers any excessive
9 costs of that nature. So we were not able to enter into
10 contracts even with those proponents.

11 This year we again issued a request for proposals,
12 and this time we received proposals for 262 megawatts of
13 renewable capacity. We just received those proposals about a
14 week and a half ago. We are undertaking to evaluate them. But
15 even if we were to find them acceptable from a price
16 perspective and contract with them, which is the reason that we
17 are going out in the market for this, it is very small, and it
18 is difficult to find somebody else that is going to do it in a
19 cost-effective way. And we recognize it because we, ourselves,
20 are proposing solar generation and wind generation and we are
21 finding that it is a challenge to bring it in in a
22 cost-effective way.

23 **COMMISSIONER ARGENZIANO:** And just a couple of other
24 questions. Is natural gas an inexhaustible supply? I have
25 heard that we are running out.

1 **THE WITNESS:** I would not say that it is an
2 inexhaustible supply. I don't think that anything is.
3 However, my understanding is that there is plenty of natural
4 gas to be available for these units for the life of these units
5 in combination between the United States and what can be
6 brought in -- into the United States, I mean, via LNG
7 facilities, not necessarily into Florida, but into the system.
8 Heather Stubblefield can discuss that aspect in detail. She is
9 the witness that is supporting the fuel price forecast and the
10 pipeline arrangements to supply these units.

11 **COMMISSIONER ARGENZIANO:** Okay. So then she would be
12 the person to ask additional questions on that issue?

13 **THE WITNESS:** That's correct.

14 **COMMISSIONER ARGENZIANO:** I just have heard that we
15 are running out, and as we run out the costs are going to rise
16 and rise and rise.

17 **THE WITNESS:** The last part is a concern to me
18 because the cost has been rising and it is a concern. And one
19 of the things that is very important about this conversion is
20 that, yes, we are adding some capacity, a little over 1,000
21 megawatts net, but we are also taking 1,357 megawatts of
22 existing generation and improving that heat rate, that energy
23 efficiency at that particular location from 10,000 Btus per
24 kilowatt hour to only 6,580. That is like a 1/3rd improvement.
25 And as prices rise that becomes more and more important.

1 **COMMISSIONER ARGENZIANO:** The reason I am concerned
2 with the supply is because if we were to expend all of these
3 dollars and only have a limited time of having natural gas
4 available without it being so costly, then it wouldn't be an
5 efficient way to go, and that's a concern.

6 One other question I have is how did you come to the
7 determination of the need for additional capacity? What
8 numbers did you use?

9 **THE WITNESS:** We have a projection of growth in
10 demand that is prepared by our finance group, and Ms. Rosemary
11 Morley is the head of the department that develops that
12 forecast. They take factors such as population growth, that
13 translates into customer growth in FPL's system; the economic
14 conditions; the cost of electricity, because there is an
15 elasticity issue there, and then weather.

16 And they project from what exists today what demand
17 is going to be in the future taking into consideration both,
18 perhaps, higher demand because of greater electrification, more
19 appliances, et cetera, and at the same time accounting for the
20 greater efficiency of those new appliances as they are brought
21 into the system. They develop that forecast, and that's what
22 comes as an input to us in resource planning to identify, well,
23 how much by way of resource do we need in order to meet this
24 growing need.

25 **COMMISSIONER ARGENZIANO:** And, I guess, in addition

1 to the new devices that we all have in our homes that may
2 require more electricity to run them, you also are using, I
3 guess, a number of people you are expecting to be moving into
4 the area.

5 **THE WITNESS:** Yes.

6 **COMMISSIONER ARGENZIANO:** And that is what I want to
7 get to. Maybe someone can answer me specifically on what
8 number, what your projections of numbers that you see of moving
9 into that area. And if they have been accounting for the -- I
10 guess, the lesser amount of people that have been moving into
11 the State of Florida.

12 **THE WITNESS:** Well, I know that -- and, again, Doctor
13 Morley can talk to in detail about this, but I can give you two
14 bits of information. One of them is we typically use -- or as
15 far as I can remember the population forecast developed by the
16 University of Florida and then translate that using average --

17 **COMMISSIONER ARGENZIANO:** I'm sorry, I didn't mean to
18 cut you off, but you reminded me of something. I had looked at
19 that recently, and the last one, I think, was a few years old
20 from the University of Florida.

21 **THE WITNESS:** The forecast that we used for most of
22 the analysis here are based on a population growth forecast
23 issued last November.

24 **COMMISSIONER ARGENZIANO:** By the university?

25 **THE WITNESS:** By the University of Florida. And, in

1 fact, we updated, again, for the purpose of this analysis our
2 load forecast in February of this year, so that's the vintage
3 of that. We even did a sensitivity analysis of what if the
4 load grows at a slower rate, and what would that do to the
5 savings that we are talking about here. And we found that
6 because these units would operate almost first after the
7 nuclear units, that the benefit would be felt and that the
8 savings would continue to be significant even if electricity
9 usage does not increase at the pace that has been projected.

10 **COMMISSIONER ARGENZIANO:** Okay. And one other
11 question. Regarding the deep well injection, can you answer
12 that, or is there someone else who can answer that as far as
13 additional --

14 **THE WITNESS:** Again, I would refer to Mr. Gnecco, but
15 I do know that the plan is for the West County facility to use
16 reclaimed water.

17 **COMMISSIONER ARGENZIANO:** From where do you get the
18 reclaimed water?

19 **THE WITNESS:** It is from the county, from Palm Beach
20 County. I can't tell you precisely from what location it is.
21 And my understanding is also, again, subject to verification by
22 Mr. Gnecco, that the injection that will take place is similar
23 to what has been taking place from an adjacent water treatment
24 plant that already exists and does injection, but I'm really
25 going beyond the extent of my expertise.

1 **COMMISSIONER ARGENZIANO:** And I will ask Mr. Gnecco.
2 But to that point, if you know this answer, when it is injected
3 what level is it treated at before it is deep well injected and
4 to what zone is it injected?

5 **THE WITNESS:** I cannot answer your question.

6 **COMMISSIONER ARGENZIANO:** Okay. I'll ask Mr. Gnecco.
7 Thank you very much.

8 **CHAIRMAN CARTER:** Commissioner Skop, you're
9 recognized.

10 **COMMISSIONER SKOP:** Thank you, Mr. Chairman. Just
11 two or three follow-up questions.

12 I guess to Commissioner Argenziano's question that
13 she asked with respect to what FPL's initiatives are in terms
14 of renewables, and they mentioned the avoided cost barrier just
15 as a point of clarification. At least it's my understanding
16 pursuant to the Commission order that although avoided cost is
17 the threshold that certainly voluntary funds could be used to
18 offset any costs above that, is that correct?

19 **THE WITNESS:** Voluntary participation?

20 **COMMISSIONER SKOP:** Voluntary funds.

21 **THE WITNESS:** I am not aware of that term,
22 Commissioner.

23 **COMMISSIONER SKOP:** Okay. I will withdraw the
24 question. Going back to the proposed conversions, has any
25 sensitivity analysis been given to the fact of what the cost

1 differentials would have been if it were at all possible? And
2 I recognize that new technology brings, certainly, enhanced
3 steam path efficiencies and such like that, but was any
4 consideration given to doing a traditional repowering where
5 they would have kept the existing steam turbine at those two
6 sites and just brought in the combustion turbines to replace
7 the oil-fired steam generation?

8 **THE WITNESS:** Yes. In the earlier stages, late last
9 fall when we began this evaluation, we were looking at both the
10 conversion that we are planning now and the more traditional
11 one, and the type of repowering that had been done at some of
12 our plants did not fair as well economically. We never carried
13 that level of detail analysis with all the current analysis.
14 We kind of -- just like we didn't carry the possibility of
15 doing conversions at other plants. We looked at those, they
16 didn't seem as cost-effective as Canaveral and Riviera for a
17 number of reasons, and so as we made the analysis more
18 sophisticated and detailed, we didn't revisit those. But we
19 did look at them initially and they were discarded because they
20 weren't as good.

21 **COMMISSIONER SKOP:** And then under the existing
22 cumulative present value revenue requirement and the savings
23 and such, and if this doesn't come into play just please let me
24 know, but at least what cost-recovery mechanisms are they
25 looking for in terms of if these plants would be approved?

1 Would that be GBRA treatment under the existing settlement
2 agreements?

3 **THE WITNESS:** We have not prejudged, at least in my
4 analysis, how the recovery would take place. Certainly the
5 GBRA would be an acceptable way for us, but it seems to me that
6 that is dependent on a number of other parties going forward in
7 the future. So from the perspective of our analysis, we have
8 assumed as we typically do that there is no lag in placing the
9 new assets into rate base and beginning recovery. To the
10 extent that there is, then that would, of course, effect the
11 resulting numbers.

12 **COMMISSIONER SKOP:** Okay. And under that, I guess,
13 GBRA treatment, or the existing settlement agreement has an
14 Evergreen provision in it, the cost of the plants, or at least
15 the first year system revenue requirement would be placed in
16 the rate base, is that correct?

17 **THE WITNESS:** Yes. And, of course, the offsetting
18 fuel and environment cost savings would also be reflected.

19 **COMMISSIONER SKOP:** And how are those -- at what
20 point is the first year system revenue requirement fixed? And,
21 again, perhaps you are not the best witness, perhaps
22 Ms. Tindell might be. But, again, my concern is is the quicker
23 we lock down the dollar value, and that is a cost of dollar
24 that is going to go in the rate base irrespective of the
25 cost-recovery, the better off we are. And, I mean,

1 historically I think that you mentioned the Lauderdale
2 conversion that happened.

3 I mean, there has been a lot of -- again, way before
4 my time, whether that was -- actually came in on target. And
5 at least for me -- and, again, I mentioned this to staff, the
6 whole bid rule and screening analysis really kind of means
7 really nothing to me. It doesn't really do a whole lot for me.
8 Because, for instance, if you were to go through that analysis
9 and, again, it is kind of not like an apple-to-apple
10 comparison, because the current bid rule requirement looks at
11 avoided cost and either bringing in power via PPA or building a
12 greenfield option. And here we are doing conversions on
13 existing sites, so obviously they are going to be more
14 cost-effective because no one can compete if they don't have
15 the land and the facilities existing.

16 But once you go through the bid process and the
17 self-bid option falls out of that as the most cost-effective,
18 you know, in terms of the avoided cost option, it becomes very
19 important to me, or the more relevant analysis then becomes for
20 that self-build option what is the most cost-effective
21 alternative for the consumers in terms of whether it is a
22 turnkey build option by, you know, Black and Vtech, or GE, or
23 somewhere you just have hands off and they deliver the keys, or
24 whether it's an active participation.

25 So, again, I could envision what would be more

1 relevant is having an upfront type of commitment that this is a
2 not to exceed price under this option, or having some
3 confidence that as we go forward, absent extraordinary
4 circumstances like commodities costs going through the roof
5 like they are now, or something that was just extraordinary
6 that could be explained away, making sure to avoid that cost
7 escalation such that when we get to the point of putting
8 something in the rate base, it hasn't significantly increased
9 substantially to the extent that if you were to go back and do
10 the analysis it might not be, for all practical purposes, the
11 most cost-effective alternative.

12 For instance, at least under a contractual turnkey
13 relationship with GE, or Black, or whomever that could offer a
14 turnkey self-build solution, you know, you might have
15 contractual provisions that you could get damages from.
16 Whereas, if an entity or utility were to undertake that
17 themselves, then certainly, you know, it becomes incumbent upon
18 them to deliver on target without substantially incurring cost
19 overruns.

20 And at least from a Commissioner's standpoint, and I
21 don't know where my colleagues are on this, and I have talked
22 to staff, you know, at least on the bid rule, and this is my
23 concern about this project, and I think that, you know,
24 certainly there needs to be some movement by FPL on this to
25 protect the interests of consumers, is that under the bid rule

1 if a public -- and this is Rule 25-22.082, Selection of
2 Generating Capacity, and under Provision 15 towards the end of
3 that it states that if a public utility selects a self-build
4 option, costs in addition to those identified in the need
5 determination proceeding shall not be recoverable unless the
6 utility can demonstrate that such costs were prudently incurred
7 and due to extraordinary circumstance.

8 Now, if we were to waive that provision, that
9 catch-all doesn't apply. And my concern, to protect the public
10 interest, is making sure that we definitize costs such that we
11 are not subjecting them to inflated amounts that go into the
12 rate base. Now, certainly I think the corollary to that is
13 that a utility that commits to doing something and comes in --
14 manages or takes that undertaking upon themselves and comes in
15 on target should be incentivized for doing that.

16 So, again, it's the carrot approach. If you come
17 before us and tell us you are going to build something and it
18 is the most cost-effective option over and above other turnkey
19 alternatives offered by, you know, contractors that do this
20 every day, then if you come in at or under budget perhaps there
21 ought to be something for incentivizing, because that's in the
22 best interest of the ratepayers.

23 But, again, I am concerned here, because, again, you
24 are asking us -- and I'm not so sure where staff is on this,
25 but I had some discussions. And I think I will reserve some of

1 this for Ms. Tindell, but, again, waiver of the bid rule
2 requirement as we are being asked to do is also waiving the
3 provision that protects the consumers and the ratepayers from
4 cost overruns because you are held under the bid rule to coming
5 in at the amounts that you state within the need determination
6 proceeding.

7 And so I think that hopefully staff can get a little
8 bit more clarification and reconciliation on that or
9 stipulations. But, again, certainly that's something that
10 needs to be fleshed out in terms of the written analysis that
11 goes forth into providing the evidentiary decision -- I mean,
12 the evidentiary record for a basis for our decision. So I
13 really think that we need to kind of take a look at that.

14 And perhaps even staff might want to even consider
15 perhaps looking into maybe some rulemaking on this. And,
16 again, I'm throwing this out there, but to me the screening
17 analysis is just like it's a go/no go. It really does nothing
18 for me if the self-build option falls out of that calculus.
19 And if we are in the self-build option, then certainly
20 utilities that have that core competency and expertise like FPL
21 has demonstrated in the past to undertake such things and to
22 bring them in on target under budget as opposed to just handing
23 over the contract to a vendor that provides a turnkey solution,
24 at least under that contract there is contractual damages and
25 liquidated damages that you can get if there is cost overruns

1 or at least whatever the contractual provisions are.

2 But if you undertake it yourself, you know, and,
3 again, I would love to see that analysis, and I think staff is
4 currently taking a look at that. At least on maybe WCEC 1 and
5 WCEC 2, if you told us it was going to come in on this price,
6 is that the price that actually hits the right base when you
7 see cost-recovery, or is that a much more inflated price, and
8 then relating it back, I guess, doing some feedback analysis,
9 you know, certainly if you're keeping to your word and
10 delivering on target on price pursuant to what you came forward
11 with in the need determination, then that is a good thing, and
12 maybe that warrants being incentivized.

13 But here we are being asked to waive the bid rule and
14 some of those protective measures that protect the ratepayer
15 would be going by the wayside, if we were to do that without
16 stipulations from the utilities, or at least from the utility's
17 perspective on that we are going to commit to the cost that is
18 at least definitized for the conversions in Ms. Tindell's
19 testimony and I think in another gentleman's testimony for the
20 WCEC 3 unit.

21 But, again, that's my concern. It's more making sure
22 that the consumers and the ratepayers are getting value and
23 that we are doing the right things. Which I think we are.
24 But, again, there needs to be the -- the need determination is
25 the need determination and then you get into the construction

1 and cost-recovery, and I just want to make sure that there is
2 some tie-in between those two. And that could be a good thing.
3 Because if we commit to the numbers up front subject to, you
4 know, the provisions that are outlined in the bid rule about
5 extraordinary circumstances and prudently incurred, then there
6 is that knowledge up front that everyone has agreed to this
7 compact, this regulatory compact, and that the ratepayers are
8 getting what they paid for and will be protected from cost
9 overruns as opposed to waiving the bid rule and then whatever
10 costs incur we just kind of dump in the system.

11 And I think staff does a diligent job of protecting
12 the consumers, and I know OPC does, although I don't see them
13 here today. But, you know, I think that those are important
14 considerations and maybe something to tee up is a constructive
15 discussion and dialogue on a forward-going basis. I mean,
16 because I do think that there is win/win there because, I mean,
17 nine times out of ten the screening analysis is probably going
18 to show a self-build option that is going to fall out of the
19 sky is the most cost-effective alternative in terms of the
20 avoided cost analysis. So the question is or then becomes how
21 do we self-build at the most cost-effective price for the
22 consumer and lock into that. So that's the only questions I
23 had.

24 **CHAIRMAN CARTER:** Thank you, Commissioner.

25 Commissioners, anything further? Hearing none.

1 That's all.

2 **CHAIRMAN CARTER:** Mr. Anderson.

3 **MR. ANDERSON:** We have nothing for Mr. Silva.

4 **CHAIRMAN CARTER:** Okay. Let's deal with exhibits.

5 **MR. ANDERSON:** FPL offers Hearing ID Exhibits Number
6 4 and 5 and 49 through 52 into the record.

7 **CHAIRMAN CARTER:** Any objections? Show it done.

8 (Exhibits 4, 5, and 49 through 52 admitted into the
9 record.)

10 **CHAIRMAN CARTER:** Thank you, Mr. Silva. Call your
11 next witness.

12 **MR. ANDERSON:** FPL calls as its next witness Alan
13 Taylor.

14 ALAN TAYLOR

15 was called as a witness on behalf of Florida Power and Light,
16 and having been duly sworn, testified as follows:

17 DIRECT EXAMINATION

18 BY MR. ANDERSON:

19 **Q** Hello, Mr. Taylor. Can you hear me okay?

20 **A** Yes, I can.

21 **Q** Have you already been sworn?

22 **A** Yes, I have.

23 **Q** Would you please tell us your name and your business
24 address?

25 **A** My name is Alan Taylor. My business address is

1 5511 North Fork Court, Boulder, Colorado 80301.

2 Q By whom are you employed and in what capacity?

3 A I am employed by Sedway Consulting. I am the
4 president of the firm.

5 Q Have you prepared and filed 14 pages of Prefiled
6 Direct Testimony in the West County 3 docket?

7 A Yes, I have.

8 Q And 13 pages of Prefiled Direct Testimony in the
9 conversion dockets for Cape Canaveral and Riviera?

10 A Yes.

11 Q Did you have any errata to your testimony?

12 A I did, and I believe that has already been submitted.

13 Q Do you have any additional changes or revisions other
14 than those reflected in your errata?

15 A No, I do not.

16 Q If I asked you the same questions contained in your
17 Prefiled Direct Testimony, subject to the errata, would your
18 answers be the same?

19 A Yes, they would.

20 **MR. ANDERSON:** FPL asks that the Prefiled Direct
21 Testimony be inserted into the record as though read.

22 **CHAIRMAN CARTER:** The Prefiled Direct Testimony will
23 be inserted into the record as though read.

24 BY MR. ANDERSON:

25 Q Do you have some exhibits?

1 **A** Yes, I do.

2 **Q** Exhibits AST-1 and 2 regarding West County 3?

3 **A** Yes, that is correct.

4 **Q** And AST-1 and 2 for the conversation docket?

5 **A** Yes, that is correct.

6 **MR. ANDERSON:** Mr. Chairman, these have been
7 premarked on staff's Comprehensive Exhibit List as 47 and 48
8 for West County 3, and 95 and 96 for the conversion dockets.

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1 **BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION**

2 **FLORIDA POWER & LIGHT COMPANY**

3 **DIRECT TESTIMONY OF ALAN S. TAYLOR**

4 **DOCKET NO. 08_____ - EI**

5 **APRIL 30, 2008**

6

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

8 A. My name is Alan S. Taylor, and my business address is 5511 Northfork Court,
9 Boulder, Colorado, 80301.

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

11 A. I am President of Sedway Consulting, Inc.

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

13 A. I perform consulting engagements in which I assist utilities, regulators, and
14 customers with the challenges that they may face in today's dynamic
15 electricity marketplace. My area of specialization is in the economic and
16 financial analysis of power supply options.

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

18 A. I earned a Bachelor of Science Degree in energy engineering from the
19 Massachusetts Institute of Technology and a Masters of Business
20 Administration from the Haas School of Business at the University of
21 California, Berkeley, where I specialized in finance and graduated
22 valedictorian.

1 I have worked in the utility planning and operations area for 20 years,
2 predominantly as a consultant specializing in integrated resource planning,
3 competitive bidding analysis, utility industry restructuring, market price
4 forecasting, and asset valuation. I have testified before state commissions in
5 proceedings involving resource solicitations, environmental surcharges, and
6 fuel adjustment clauses.

7
8 I began my career at Baltimore Gas & Electric Company (BG&E), where I
9 performed efficiency and environmental compliance testing on the utility
10 system's power plants. I subsequently worked for five years as a senior
11 consultant at Energy Management Associates (EMA, now New Energy
12 Associates), training and assisting over two dozen utilities in their use of
13 EMA's operational and strategic planning models, PROMOD III and
14 PROSCREEN II. During my graduate studies, I was employed by Pacific Gas
15 & Electric Company (PG&E), where I analyzed the utility's proposed demand
16 side management (DSM) incentive ratemaking mechanism, and by Lawrence
17 Berkeley Laboratory (LBL), where I evaluated utility regulatory policies
18 surrounding the development of brownfield generation sites.

19
20 Subsequently, I worked at PHB Hagler Bailly (and its predecessor firms) for
21 ten years, serving as a vice president in the firm's Global Economic Business
22 Services practice and as a senior member of the Wholesale Energy Markets
23 practice of PA Consulting Group, when that firm acquired PHB Hagler Bailly

1 in 2000. In 2001, I founded Sedway Consulting, Inc. and have continued to
2 specialize in economic analyses associated with electricity wholesale markets.

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

4 A. Sedway Consulting was retained to assist Florida Power & Light Company
5 (FPL) in conducting its 2007 solicitation for competitive power supplies.
6 I was the principal consultant on the project, reviewed FPL's solicitation
7 process, and performed a parallel and independent economic evaluation of
8 FPL's Next Planned Generating Unit (NPGU) and the proposals that were
9 received by FPL in response to the utility's solicitation. Ultimately, I
10 concluded that FPL's West County Energy Center (WCEC) Unit 3 combined-
11 cycle (CC) facility described in FPL's Request for Proposals (RFP), with an
12 in-service date of June, 2011, represented the most cost-effective resource for
13 meeting FPL's resource needs for 2011-2013. In early April, 2008, I filed
14 testimony in another proceeding before the Florida Public Service
15 Commission regarding that evaluation and selection decision.

16
17 Subsequently, Sedway Consulting was retained by FPL to perform an
18 independent evaluation of the economics of specific conversion options (that
19 FPL is considering for its existing Cape Canaveral and Riviera power plants)
20 relative to the power supply options that were evaluated by Sedway
21 Consulting in FPL's recent 2007 RFP. The purpose of my testimony is to
22 describe my role as an independent evaluator and present my findings. I will
23 discuss the process and tools that I used to conduct that economic evaluation.

1 Based on the results of my independent evaluation, I concluded that FPL's
2 Cape Canaveral and Riviera conversion options are more cost-effective than
3 the proposed power purchase agreement (PPA) alternatives that were
4 submitted in FPL's 2007 resource solicitation two months ago (on
5 February 13, 2008).

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

7 A. Yes. I am sponsoring Exhibits AST-1 and AST-2, which are attached to my
8 direct testimony:

9 Exhibit AST-1 Resume of Alan S. Taylor

10 Exhibit AST-2 Sedway Consulting's Independent Evaluation Report.

11 **Q. Before describing your role in the review of FPL's conversion options,**
12 **please describe the role you performed as an independent evaluator in**
13 **FPL's 2007 RFP project.**

14 A. As the independent evaluator in FPL's 2007 RFP project, I reviewed FPL's
15 2007 Ten-Year Site Plan and the utility's modeling processes pertaining to its
16 use of P-MArea, a detailed production costing model that was used in the
17 economic evaluation of resource options in the solicitation. I, and/or members
18 of the Sedway Consulting team, listened in on the December 11, 2007 Pre-
19 Issuance Conference Call and attended the December 20, 2007 Bidders
20 Conference. Before receiving the proposals, I had requested that FPL run
21 P-MArea and provide production costing results that I could use to calibrate
22 Sedway Consulting's resource evaluation model. I participated in the opening
23 of proposal packages in Miami on the Proposal Due Date (February 13, 2008),

1 retained one copy of each submitted proposal, and evaluated the
2 economic/pricing information from each proposal. Using Sedway
3 Consulting's Response Surface Model (RSM), I developed and evaluated
4 portfolios of resources and assessed their overall costs. I compared Sedway
5 Consulting's portfolio ranking and results with those of FPL to confirm
6 consistency of assumptions and concurrence of conclusions, and I documented
7 the entire process in an independent evaluation report.

8 **Q. Please describe the role you performed as an independent evaluator in**
9 **reviewing FPL's conversion options.**

10 A. I assessed the economics of the FPL conversion options in the context of the
11 proposals that FPL received and considered in the utility's recent RFP. In
12 performing that assessment, I used the same model (the RSM) that Sedway
13 Consulting used in that solicitation.

14 **Q. Please describe Sedway Consulting's RSM model and its use in FPL's**
15 **conversion assessment project.**

16 A. The RSM is a spreadsheet model that I have used in solicitations around the
17 country, and it was used in the conversion assessment project in the same way
18 that it was used in FPL's 2007 RFP project. It is a relatively straightforward
19 tool that allows one to independently assess the cost impacts of different
20 generating or purchase resources for a utility's supply portfolio. Most of the
21 evaluation analytics in the RSM involve calculations that are based entirely on
22 my input of proposal costs and characteristics. A small part of the model
23 examines system production cost impacts and needs to be calibrated to

1 simulate a specific utility's system. In the case of the FPL solicitation, in the
2 weeks prior to the proposal opening, I requested that FPL execute specific sets
3 of runs with P-MArea. With the results of these runs, I was able to calibrate
4 the RSM to approximate the production cost results that P-MArea would
5 produce in a subsequent evaluation of any proposals or self-build options that
6 FPL might receive. Thus, I would not have to rely on FPL's modeling of a
7 proposal or self-build option; instead, I would be able to insert my own inputs
8 into my own model and independently evaluate the economic impact of any
9 particular resource. In short, the RSM provides an independent assessment to
10 help ensure against the inadvertent introduction of significant mistakes that
11 could cause the evaluation team to reach the wrong conclusions.

12 **Q. How is the RSM an independent analytical tool if it is based on initial**
13 **P-MArea results?**

14 A. As I noted above, most of the calculations performed by the RSM are not
15 based on P-MArea results in any way. There are two main categories of costs
16 that are evaluated in a resource solicitation: fixed costs and variable costs.
17 The costs in the first category – the fixed costs of a proposal – are calculated
18 entirely separately in the RSM, with no reliance on the P-MArea model for
19 these calculations. The second category – variable costs – has two parts:
20 (1) the calculation of a resource's variable dispatch rates and, (2) the impact
21 that a resource with such variable rates is likely to have on FPL's total system
22 production costs. As with the fixed costs, a proposal's variable dispatch rates
23 are calculated entirely separately in the RSM, with no basis or reliance on the

1 P-MArea model. It is only in the final subcategory – the impact that a
2 resource is likely to have on system production costs – that the RSM has any
3 reliance on calibrated results from P-MArea.

4 **Q. Please elaborate on that area of calculations where the RSM is affected by**
5 **the P-MArea calibration runs.**

6 A. This is the area of system production costs. These costs represent the total
7 fuel, variable operation and maintenance (O&M), emission, and purchased
8 power energy costs that FPL incurs in serving its customers' load. Given
9 FPL's load forecast, the existing FPL supply portfolio (i.e., all current
10 generating facilities and purchase power contracts), and many specific
11 assumptions about future resources and fuel costs, P-MArea simulates the
12 dispatch of FPL's system and forecasts total production costs for each month
13 of each year of the study period. At the outset of the solicitation project, the
14 RSM was populated with monthly system production cost results that were
15 created by the P-MArea calibration runs.

16 **Q. What did the RSM do with this production cost information?**

17 A. Once incorporated into the RSM, the production cost information allowed the
18 RSM to answer the question: How much money (in monthly total production
19 costs) is FPL likely to save if it acquires a proposed resource, relative to a
20 reference resource? The use of a reference resource simply allowed a
21 consistent point of comparison for evaluating all proposals and FPL's self-
22 build options. As a reference resource, I used a hypothetical gas-fired
23 resource with a very high variable dispatch rate associated with a heat rate of

1 25,000 Btu/kWh. In fact, I could have picked any variable dispatch or heat
 2 rate for the reference resource and obtained the same relative ranking of
 3 proposals out of the RSM. The cost of the reference resource has no impact
 4 on the relative results – it is merely a consistent reference point.

5 **Q. Can you provide a numerical example that shows how the RSM works?**

6 A. Certainly. Assume that a utility has a one-year resource need of 1,000 MW
 7 and must select one of the two following proposals:

	Proposal A	Proposal B
8		
9		
10	Capacity:	1,000 MW
11	Capacity Price:	\$9.00/kW-month
12	Energy Price:	\$20/MWh
13		

14 For both proposals, the RSM has already calculated the fixed costs (and
 15 represented them in the capacity price) and the variable costs (and represented
 16 them in the energy price). Proposal A is more expensive in terms of fixed
 17 costs, but Proposal B is more expensive on an energy cost basis. The RSM
 18 calculates the final piece of the economic analysis – the different impacts on
 19 system production costs – to determine which proposal is less expensive in a
 20 total sense for the utility system as a whole.

1 Assume that the 25,000 Btu/kWh reference unit has a variable cost of
2 \$150/MWh and that the RSM has been calibrated and populated with the
3 following production cost information:

4

5 For a 1,000 MW proxy resource, the utility's one-year total system production
6 costs are:

7

- 8 • \$2.500 billion for a \$150/MWh energy price reference resource
- 9 • \$2.488 billion for a \$50/MWh energy price resource (Proposal B)
- 10 • \$2.452 billion for a \$20/MWh energy price resource (Proposal A)

11

12 Thus, the energy savings (relative to the selection of a \$150/MWh reference
13 resource) are \$48 million for Proposal A with its \$20/MWh energy price and
14 \$12 million for Proposal B with its \$50/MWh energy price. In its proposal
15 ranking process, the RSM converts all production cost savings into a \$/kW-
16 month equivalent value so that the savings can be deducted from the capacity
17 price to yield a final net cost (in \$/kW-month) for each proposal. Converting
18 the energy savings in this numerical example into \$/kW-month equivalent
19 values yields the following:

20

21
$$\text{\$48 million} / (1,000 \text{ MW} * 12 \text{ months}) = \text{\$4.00/kW-month}$$

22
$$\text{\$12 million} / (1,000 \text{ MW} * 12 \text{ months}) = \text{\$1.00/kW-month}$$

1 The RSM calculates the net cost of both proposals by subtracting the energy
2 cost savings from the fixed costs:

	Proposal A	Proposal B
3 Capacity Price:	\$9.00/kW-month	\$5.50/kW-month
4 Energy Cost Savings:	\$4.00/kW-month	\$1.00/kW-month
5 Net Cost:	\$5.00/kW-month	\$4.50/kW-month

7

8 Proposal B is less expensive. This can be confirmed through a total cost
9 analysis as well:

10

11 Proposal A will require total capacity payments of \$108 million (= 1,000 MW
12 x \$9.00/kW-month x 12 months), and Proposal B will require \$66 million
13 (= 1,000 MW x \$5.50/kW-month x 12 months). Thus, Proposal A has fixed
14 costs that are \$42 million more than Proposal B.

15

16 Proposal A will provide \$36 million more in energy cost savings
17 (= \$48 million - \$12 million); however, this is not enough to warrant paying
18 \$42 million more in fixed costs. Therefore, Proposal B is the less expensive
19 alternative.

20

21 Note that the RSM is described in more detail in the independent evaluation
22 report that is attached to my testimony as Exhibit AST-2.

1 **Q. With that understanding of the RSM process, what did you do to**
2 **calibrate the RSM to P-MArea?**

3 A. I reviewed the production cost information that FPL provided at the start of
4 the project and confirmed that the production costs were, for the most part,
5 exhibiting smooth, correct trends (i.e., they were increasing where they should
6 be increasing and declining where they should be declining). Having verified
7 that the RSM production cost values were “smooth,” I was confident that
8 inputting variable cost parameters into the models for similar proposals would
9 yield similar production cost results. Although the RSM is not a detailed
10 model and could not simulate FPL’s production costs with P-MArea’s
11 accuracy, in the end, the independent RSM evaluation results tracked
12 P-MArea’s results reasonably well. As noted above, FPL incorporated some
13 revised planning assumptions into its latest analysis. Thus, I would not
14 necessarily expect a direct correlation between FPL and Sedway Consulting’s
15 analysis anyway. Instead, my analysis focused on how FPL’s Cape Canaveral
16 and Riviera conversion options compared to the proposed PPAs from FPL’s
17 recent resource solicitation, based on the original assumptions that were in
18 place prior to the February 13, 2008 RFP Proposal Due Date.

19 **Q. Did you find it necessary to modify the proposal information to conduct**
20 **your analysis?**

21 A. Yes. The proposals had been in response to a solicitation for power supplies
22 as early as 2011. In the conversion analysis, I assumed that FPL’s West
23 County Energy Center Unit 3 would be in service by 2011, thereby pushing

1 out FPL's need for new capacity until 2014. I did not think that it would be
2 appropriate to evaluate the proposals with their original start dates because
3 they would represent excess capacity and would be disadvantaged in the
4 economic analysis.

5 **Q. How then did you modify the proposal information to conduct your**
6 **analysis?**

7 A. I advanced the PPA start dates to 2014 for all proposals. Unless there were
8 explicit escalation parameters included in the proposals, I kept the pricing at
9 the original start date's value. I think that this is a conservative assumption.
10 Given general inflation and the cost increases that are being experienced in the
11 generation technology markets, had FPL requested revised proposals from the
12 bidders for later (2014) PPA start dates, it is likely that the prices would have
13 been higher than the original proposals.

14 **Q. What were the results of Sedway Consulting's RSM analysis?**

15 A. Using the RSM, Sedway Consulting performed a portfolio analysis. The
16 portfolio with the oil-fired steam units at Cape Canaveral (Units 1 and 2) and
17 Riviera (Units 3 and 4) converted at each site to a new 3-on-1 G combined
18 cycle facility was found to be \$481 million (cumulative present value of
19 revenue requirements – CPVRR) less expensive than the best portfolio that
20 included any of the proposed PPAs. The results and ranking of portfolios are
21 described in detail in Sedway Consulting's independent evaluation report that
22 is attached as Exhibit AST-2.

1 **Q. What do you conclude about FPL's conversion projects?**

2 A. I conclude that the Cape Canaveral and Riviera conversion projects are more
3 cost effective than the procurement of power through the long-term PPAs that
4 were submitted for consideration in FPL's recent resource solicitation (and
5 appropriately adjusted to make the timing of those PPAs as favorably
6 comparable to the FPL conversion projects as possible).

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

8 A. Yes.

1 **BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION**

2 **FLORIDA POWER & LIGHT COMPANY**

3 **DIRECT TESTIMONY OF ALAN S. TAYLOR**

4 **DOCKET NO. 08 _____ - EI**

5 **APRIL 8, 2008**

6

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

8 A. My name is Alan S. Taylor, and my business address is 5511 Northfork Court,
9 Boulder, Colorado, 80301.

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

11 A. I am President of Sedway Consulting, Inc.

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

13 A. I perform consulting engagements in which I assist utilities, regulators, and
14 customers with the challenges that they may face in today's dynamic
15 electricity marketplace. My area of specialization is in the economic and
16 financial analysis of power supply options.

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

18 A. I earned a Bachelor of Science Degree in energy engineering from the
19 Massachusetts Institute of Technology and a Masters of Business
20 Administration from the Haas School of Business at the University of
21 California, Berkeley, where I specialized in finance and graduated
22 valedictorian.

1 I have worked in the utility planning and operations area for 20 years,
2 predominantly as a consultant specializing in integrated resource planning,
3 competitive bidding analysis, utility industry restructuring, market price
4 forecasting, and asset valuation. I have testified before state commissions in
5 proceedings involving resource solicitations, environmental surcharges, and
6 fuel adjustment clauses.

7
8 I began my career at Baltimore Gas & Electric Company (BG&E), where I
9 performed efficiency and environmental compliance testing on the utility
10 system's power plants. I subsequently worked for five years as a senior
11 consultant at Energy Management Associates (EMA, now New Energy
12 Associates), training and assisting over two dozen utilities in their use of
13 EMA's operational and strategic planning models, PROMOD III and
14 PROSCREEN II. During my graduate studies, I was employed by Pacific Gas
15 & Electric Company (PG&E), where I analyzed the utility's proposed demand
16 side management (DSM) incentive ratemaking mechanism, and by Lawrence
17 Berkeley Laboratory (LBL), where I evaluated utility regulatory policies
18 surrounding the development of brownfield generation sites.

19
20 Subsequently, I worked at PHB Hagler Bailly (and its predecessor firms) for
21 ten years, serving as a vice president in the firm's Global Economic Business
22 Services practice and as a senior member of the Wholesale Energy Markets
23 practice of PA Consulting Group, when that firm acquired PHB Hagler Bailly

1 in 2000. In 2001, I founded Sedway Consulting, Inc. and have continued to
2 specialize in economic analyses associated with electricity wholesale markets.

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

4 A. I was retained to assist Florida Power & Light Company (FPL) in conducting
5 its 2007 solicitation for competitive power supplies. The purpose of my
6 testimony is to describe my role as an independent evaluator and present my
7 findings. I reviewed FPL's solicitation process and performed a parallel and
8 independent economic evaluation of FPL's Next Planned Generating Unit
9 (NPGU) and the proposals that were received by FPL in response to the
10 utility's solicitation. FPL's NPGU is the West County Energy Center
11 (WCEC) Unit 3 combined-cycle (CC) facility described in FPL's Request for
12 Proposals (RFP), with an in-service date of June, 2011. I will discuss the
13 process and tools that I used to conduct that parallel economic evaluation.
14 Based on the results of my independent evaluation, I concluded that the
15 NPGU portfolio represents the most cost-effective portfolio to meet FPL's
16 resource needs for 2011-2013.

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

18 A. Yes. I am sponsoring Exhibits AST-1 and AST-2, which are attached to my
19 direct testimony:

20 Exhibit AST-1 Resume of Alan S. Taylor

21 Exhibit AST-2 Sedway Consulting's Independent Evaluation Report.

22 **Q. Please describe the role you performed as an independent evaluator in**
23 **FPL's solicitation.**

1 A. I reviewed FPL's 2007 Ten-Year Site Plan and participated in the
2 development of the utility's 2007 RFP. I reviewed FPL's modeling processes
3 pertaining to its use of P-MArea, a detailed production costing model that was
4 used in the economic evaluation of resource options in this solicitation. I,
5 and/or members of the Sedway Consulting team, listened in on the
6 December 11, 2007 Pre-Issuance Conference Call and attended the
7 December 20, 2007 Bidders Conference. Before receiving the proposals, I
8 requested that FPL run P-MArea and provide production costing results that I
9 could use to calibrate Sedway Consulting's resource evaluation model. I flew
10 to Miami to participate in the opening of proposal packages on the Proposal
11 Due Date (February 13, 2008), retained one copy of each submitted proposal,
12 and evaluated the economic/pricing information from each proposal. FPL
13 conferred with me on a number of issues relating to proposal RFP-
14 noncompliance decisions, interpretation of proposal information, clarification
15 requests, and economic evaluation assumptions. As the evaluation
16 progressed, FPL and I discussed appropriate courses of action and modeling
17 assumptions. Using Sedway Consulting's Response Surface Model (RSM), I
18 developed and evaluated portfolios of resources and assessed their overall
19 costs. I compared Sedway Consulting's portfolio ranking and results with
20 with those of FPL to confirm consistency of assumptions and concurrence of
21 conclusions, and I documented the entire process in an independent evaluation
22 report (Exhibit AST-2).

1 **Q. You stated that you were involved in the development of the RFP. What**
2 **did your involvement entail?**

3 A. As the independent evaluator, I reviewed draft versions of the RFP document,
4 participated in several discussions by phone, and was given the opportunity to
5 provide my input and suggestions for improving the RFP.

6 **Q. Do you believe that FPL's RFP was a reasonable document for soliciting**
7 **proposals?**

8 A. Yes. As one who has developed over a dozen such utility resource RFPs, I
9 believe that FPL's RFP struck a good balance between being sufficiently
10 detailed without being burdensome on the respondent. With its RFP, FPL
11 attached two versions of a draft power purchase agreement (PPA) that
12 provided the proposers with a clear understanding of the general business
13 arrangement that FPL contemplated.

14 **Q. Do you believe that FPL's evaluation process was conducted fairly?**

15 A. Yes. The proposals, FPL's NPGU, and other FPL self-build options included
16 in the evaluation process were evaluated on an equal footing, with consistent
17 assumptions applied to all resource options.

18 **Q. Please describe Sedway Consulting's RSM model and its use in FPL's**
19 **solicitation.**

20 A. The RSM is a spreadsheet model that I have used in solicitations around the
21 country. It is a relatively straightforward tool that allows one to
22 independently assess the cost impacts of different generating or purchase
23 resources for a utility's supply portfolio. Most of the evaluation analytics in

1 the RSM involve calculations that are based entirely on my input of proposal
2 costs and characteristics. A small part of the model examines system
3 production cost impacts and needs to be calibrated to simulate a specific
4 utility's system. In the case of the FPL solicitation, in the weeks prior to the
5 proposal opening, I requested that FPL execute specific sets of runs with
6 P-MArea. With the results of these runs, I was able to calibrate the RSM to
7 approximate the production cost results that P-MArea would produce in a
8 subsequent evaluation of any proposals or self-build options that FPL might
9 receive. Thus, I would not have to rely on FPL's modeling of a proposal;
10 instead, I would be able to insert my own inputs into my own model and
11 independently evaluate the economic impact of any particular proposal. In
12 short, the RSM provides an independent assessment to help ensure against the
13 inadvertent introduction of significant mistakes that could cause the
14 evaluation team to reach the wrong conclusions.

15 **Q. How is the RSM an independent analytical tool if it is based on initial**
16 **P-MArea results?**

17 A. As I noted above, most of the calculations performed by the RSM are not
18 based on P-MArea results in any way. There are two main categories of costs
19 that are evaluated in a resource solicitation: fixed costs and variable costs.
20 The costs in the first category – the fixed costs of a proposal – are calculated
21 entirely separately in the RSM, with no reliance on the P-MArea model for
22 these calculations. The second category – variable costs – has two parts:
23 (1) the calculation of a resource's variable dispatch rates and, (2) the impact

1 that a resource with such variable rates is likely to have on FPL's total system
2 production costs. As with the fixed costs, a proposal's variable dispatch rates
3 are calculated entirely separately in the RSM, with no basis or reliance on the
4 P-MArea model. It is only in the final subcategory – the impact that a
5 resource is likely to have on system production costs – that the RSM has any
6 reliance on calibrated results from P-MArea.

7 **Q. Please elaborate on that area of calculations where the RSM is affected by**
8 **the P-MArea calibration runs.**

9 A. This is the area of system production costs. These costs represent the total
10 fuel, variable operation and maintenance (O&M), emission, and purchased
11 power energy costs that FPL incurs in serving its customers' load. Given
12 FPL's load forecast, the existing FPL supply portfolio (i.e., all current
13 generating facilities and purchase power contracts), and many specific
14 assumptions about future resources and fuel costs, P-MArea simulates the
15 dispatch of FPL's system and forecasts total production costs for each month
16 of each year of the study period. At the outset of the solicitation project, the
17 RSM was populated with monthly system production cost results that were
18 created by the P-MArea calibration runs.

19 **Q. What did the RSM do with this production cost information?**

20 A. Once incorporated into the RSM, the production cost information allowed the
21 RSM to answer the question: How much money (in monthly total production
22 costs) is FPL likely to save if it acquires a proposed resource, relative to a
23 reference resource? The use of a reference resource simply allowed a

1 consistent point of comparison for evaluating all proposals and FPL's self-
 2 build options. As a reference resource, I used a hypothetical gas-fired
 3 resource with a very high variable dispatch rate associated with a heat rate of
 4 25,000 Btu/kWh. In fact, I could have picked any variable dispatch or heat
 5 rate for the reference resource and obtained the same relative ranking of
 6 proposals out of the RSM. The cost of the reference resource has no impact
 7 on the relative results – it is merely a consistent reference point.

8 **Q. Can you provide a numerical example that shows how the RSM works?**

9 A. Certainly. Assume that a utility has a one-year resource need of 1,000 MW
 10 and must select one of the two following proposals:

11

	Proposal A	Proposal B
12 Capacity:	1,000 MW	1,000 MW
13 Capacity Price:	\$9.00/kW-month	\$5.50/kW-month
14 Energy Price:	\$20/MWh	\$50/MWh

15

16
 17 For both proposals, the RSM has already calculated the fixed costs (and
 18 represented them in the capacity price) and the variable costs (and represented
 19 them in the energy price). Proposal A is more expensive in terms of fixed
 20 costs, but Proposal B is more expensive on an energy cost basis. The RSM
 21 calculates the final piece of the economic analysis – the different impacts on
 22 system production costs – to determine which proposal is less expensive in a
 23 total sense for the utility system as a whole.

1 Assume that the 25,000 Btu/kWh reference unit has a variable cost of
2 \$150/MWh and that the RSM has been calibrated and populated with the
3 following production cost information:

4
5 For a 1,000 MW proxy resource, the utility's one-year total system production
6 costs are:

- 7
- 8 • \$2.500 billion for a \$150/MWh energy price reference resource
- 9 • \$2.488 billion for a \$50/MWh energy price resource (Proposal B)
- 10 • \$2.452 billion for a \$20/MWh energy price resource (Proposal A)

11

12 Thus, the energy savings (relative to the selection of a \$150/MWh reference
13 resource) are \$48 million for Proposal A with its \$20/MWh energy price and
14 \$12 million for Proposal B with its \$50/MWh energy price. In its proposal
15 ranking process, the RSM converts all production cost savings into a \$/kW-
16 month equivalent value so that the savings can be deducted from the capacity
17 price to yield a final net cost (in \$/kW-month) for each proposal. Converting
18 the energy savings in this numerical example into \$/kW-month equivalent
19 values yields the following:

20

21
$$\$48 \text{ million} / (1,000 \text{ MW} * 12 \text{ months}) = \$4.00/\text{kW-month}$$

22
$$\$12 \text{ million} / (1,000 \text{ MW} * 12 \text{ months}) = \$1.00/\text{kW-month}$$

1 The RSM calculates the net cost of both proposals by subtracting the energy
2 cost savings from the fixed costs:

	Proposal A	Proposal B
3 Capacity Price:	\$9.00/kW-month	\$5.50/kW-month
4 Energy Cost Savings:	\$4.00/kW-month	\$1.00/kW-month
5 Net Cost:	\$5.00/kW-month	\$4.50/kW-month

7

8 Proposal B is less expensive. This can be confirmed through a total cost
9 analysis as well:

10

11 Proposal A will require total capacity payments of \$108 million (= 1,000 MW
12 x \$9.00/kW-month x 12 months), and Proposal B will require \$66 million
13 (= 1,000 MW x \$5.50/kW-month x 12 months). Thus, Proposal A has fixed
14 costs that are \$42 million more than Proposal B.

15

16 Proposal A will provide \$36 million more in energy cost savings
17 (= \$48 million - \$12 million); however, this is not enough to warrant paying
18 \$42 million more in fixed costs. Therefore, Proposal B is the less expensive
19 alternative.

20

21 Note that the RSM is described in more detail in the independent evaluation
22 report that is attached to my testimony as Exhibit AST-2.

1 Q. With that understanding of the RSM process, what did you do to
2 calibrate the RSM to P-MArea?

3 A. I reviewed the production cost information that FPL provided at the start of
4 the project and confirmed that the production costs were, for the most part,
5 exhibiting smooth, correct trends (i.e., they were increasing where they should
6 be increasing and declining where they should be declining). Having verified
7 that the RSM production cost values were “smooth,” I was confident that
8 inputting variable cost parameters into the models for similar proposals would
9 yield similar production cost results. Although the RSM is not a detailed
10 model and could not simulate FPL’s production costs with P-MArea’s
11 accuracy, in the end, the independent RSM evaluation results tracked
12 P-MArea’s results reasonably well. Also, it is important to note that FPL
13 made some changes to its P-MArea modeling assumptions just prior to the
14 Proposal Due Date (February 13, 2008). A new set of production cost results
15 were provided to Sedway Consulting following the opening of proposals. It
16 was believed that these new results did not vary significantly from the set that
17 had already been provided to Sedway Consulting. In any case, Sedway
18 Consulting decided to use the original set to see if the pre-bid-opening
19 information supported all eventual evaluation conclusions.

20 Q. Once the RSM was calibrated, what was the next step?

21 A. I flew to Miami on the Proposal Due Date, observed the opening of all
22 proposal packages, and retained my own copy of each proposal. There were
23 three proposals; they were labeled P1 through P3. I read each proposal and

1 participated in discussions with FPL about interpreting the proposals,
2 identifying areas requiring clarification, and assessing each proposal's
3 compliance with the RFP's Minimum Requirements. Although it was not
4 immediately clear whether or not all three proposals were in compliance with
5 the RFP's Minimum Requirements, it was decided that the economic
6 evaluation should proceed with all of the received proposals. Meanwhile,
7 FPL communicated with proposers to seek clarification and corrections to
8 uncertain areas of the proposals.

9
10 I incorporated pricing and operational information from each proposal into the
11 RSM. Such information included contract commencement and expiration
12 dates, summer and winter capacity, capacity pricing, heat rates, fuel supply
13 assumptions, variable O&M charges, start-up costs, expected forced outage
14 hours, and expected planned outage hours. Most of this information was
15 directly inputted into the RSM. As part of this process, FPL provided Sedway
16 Consulting with its own modeling input spreadsheets so that Sedway
17 Consulting could cross-check these inputs and ensure consistency with the
18 information in the RSM.

19 **Q. What were the results of Sedway Consulting's RSM analysis?**

20 A. Using the RSM, Sedway Consulting performed a portfolio analysis. The
21 ranking of portfolios was similar to FPL's portfolio ranking and supports the
22 evaluation process' selection decision. The results are described in detail in

1 Sedway Consulting's independent evaluation report that is attached as
2 Exhibit AST-2.

3 **Q. What did those rankings reveal?**

4 A. In the portfolio ranking, FPL's NPGU portfolio (i.e., developing WCEC 3 in
5 2011) was found to be the most cost-effective means of meeting FPL's 2011-
6 2013 capacity needs. That portfolio was found to be approximately \$536
7 million less expensive on a cumulative present value of revenue requirements
8 (CPVRR) basis than the next least expensive portfolio that included outside
9 proposals. As far as an economic comparison with portfolios of other FPL
10 self-build options that Sedway Consulting considered, the NPGU portfolio
11 was found to be approximately \$112 million CPVRR less expensive than the
12 next least expensive self-build portfolio. That next least expensive self-build
13 portfolio involved the development of WCEC 3, with a delayed in-service
14 date of June, 2012.

15 **Q. What do you conclude about FPL's solicitation?**

16 A. I conclude that the portfolio of FPL's NPGU (i.e., WCEC 3 in 2011) is the
17 most cost-effective portfolio for meeting FPL's 2011-2013 capacity needs and
18 concur with FPL's decision to move forward with that project. The
19 solicitation process yielded the best results for FPL's customers while treating
20 proposers fairly. The RFP was sufficiently detailed to provide necessary
21 information to proposers. The economic evaluation methodology and
22 assumptions were appropriate and unbiased, and the independent evaluation
23 procedures provided a cross-check of FPL's proposal representation in P-

1 MArea and confirmed FPL's conclusions. Finally, I conclude that FPL's
2 NPGU portfolio is \$536 million CPVRR less expensive than the next best
3 portfolio that does not include FPL self-build options and \$112 million
4 CPVRR less expensive than the next best FPL self-build portfolio.

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

6 **A. Yes.**

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Florida Power & Light Company's Petition to determine need for West County Energy Center Unit 3 electrical power plant.	DOCKET NO. 080203-EI
In re: Florida Power & Light Company's Petition for determination of need for conversion of Riviera Plant in Palm Beach County.	DOCKET NO. 080245-EI
In re: Florida Power & Light Company's Petition for determination of need for conversion of Cape Canaveral Plant in Brevard County.	DOCKET NO. 080246-EI
	Filed: June 19, 2008

ERRATA SHEET

DIRECT TESTIMONY OF ALAN TAYLOR; DOCKET 080203-EI

<u>PAGE #</u>	<u>LINE #</u>	<u>CORRECTION</u>
13	6	“\$536 million” should be “\$537 million”
14	2	“\$536 million” should be “\$537 million”

1 BY MR. ANDERSON:

2 Q Mr. Taylor, have you prepared a summary of your
3 testimony?

4 A Yes, I have.

5 Q Would you please provide that to the Commission?

6 A Certainly. Chairman Carter, Commissioners, I am the
7 president and founder of Sedway Consulting, a firm that
8 specializes in utility generation resource procurement, power
9 contracting, and providing independent evaluation services in
10 various solicitations, something I have done for many years. I
11 have been in the energy field since the early 1980s, and have
12 overseen dozens of power supply solicitations around the
13 country, conventional and renewable solicitations, and several
14 here in Florida. Not just involved with the current case with
15 Florida Power and Light, but previous FPL solicitations as well
16 as ones for power supplies that were sought by Seminole
17 Electric, Tampa Electric, and Florida Progress.

18 To describe the activities that I undertook in this
19 case, they were fairly typical of the IE, or independent
20 evaluator role that I have performed. First, I assisted in the
21 development and review of the RFP, the request for proposals
22 that was issued on December 13th of last year. I reviewed the
23 attachments to that, the power supply agreements. I or members
24 of my team participated in the various meetings and calls
25 associated with the process, the pre-issuance conference call,

1 for example, the post-issuance bidders conference, and then I
2 was in Miami to monitor the actual bid opening on February 13th
3 of this year.

4 Prior to that whole bid opening process, I reviewed
5 FPL's modeling and evaluation methodologies. I also examined
6 the evaluation model PM area (phonetic) that FPL used for
7 conducting its economic evaluation, and I instructed FPL to
8 execute, prior to the opening of these bids, a series of
9 evaluation runs where I could review the results and extract
10 information to use to populate Sedway Consulting's proprietary
11 evaluation model called the RSM, the Response Surface Model.

12 With that RSM, I then performed an independent
13 evaluation of the proposals that I had retrieved from the
14 February 13th bid opening, and I had full control over all the
15 inputs. I was free to my make my own decisions and determine
16 exactly what sort of proposal pricing and interpretation of the
17 information in the proposals, be it resource operating
18 parameters or other fixed cost issues. And at times I even
19 differed from what FPL was using in its analysis.

20 For example, FPL did revise its fuel price and
21 emission cost forecasts through the spring to keep them current
22 with its best view of the market. I chose independently to
23 basically keep the information anchored with what I had in hand
24 prior to the opening of the bids on February 13th. This way I
25 could evaluate whether or not updates, these updates that FPL

1 developed were in any way influencing the selection decisions
2 that FPL was coming up with.

3 In my analysis I did come up with different numbers,
4 but my conclusions were the same as FPL's. Thus, I can provide
5 assurance to the Commission and other interested parties that
6 FPL's changing its planning assumptions did not inappropriately
7 influence its selection decisions. Ultimately, I determined
8 that the West County 3 resource was better than the outside
9 proposals that were solicited and presented as responses in the
10 solicitation by approximately \$537 million on a cumulative
11 present worth revenue requirements basis.

12 Subsequent to the conclusion of that particular
13 solicitation, FPL requested that I perform an independent
14 economic analysis of the conversion options that have been
15 discussed this morning at its Cape Canaveral and Riviera
16 plants. Specifically, FPL requested that I compare these
17 conversion options to the offers that had been provided in
18 response to its earlier solicitation.

19 I recognized that the new resources, these conversion
20 options would not be needed until 2014. Again, with the
21 assumption that West County 3 came into service in 2011, so I
22 took the proposals and advanced the in-service dates to 2014.
23 I considered that to be a conservative assumption, because I
24 also kept all flat pricing and other parameters the same, and
25 it has been my experience in power supply solicitations that if

1 you asked developers to propose something later in date usually
2 there are cost escalations or other parameters that are going
3 to increase the pricing.

4 Even with those conservative assumptions, though, I
5 found that the conversions of the Cape Canaveral and Riviera
6 plants proved to be better than the resources from these --
7 these resource portfolios from these outside proposals to the
8 tune of about \$481 million. Again, cumulative present worth of
9 revenue requirements. Thus, I concluded that the West County 3
10 and the conversions of Cape Canaveral and Riviera power plants
11 are the least expensive options. Less expensive than the
12 outside proposals that were submitted in FPL's recent
13 solicitation. The combined savings appear to be in excess of a
14 billion dollars. That concludes my summary.

15 **MR. ANDERSON:** Mr. Taylor is available for questions.

16 **CHAIRMAN CARTER:** Commissioners?

17 Commissioner Skop, you're recognized.

18 **COMMISSIONER SKOP:** Thank you, Mr. Chairman. Mr.
19 Taylor, good morning.

20 **THE WITNESS:** Good morning.

21 **COMMISSIONER SKOP:** I guess I appreciated your
22 testimony because it clarified a lot for me in terms of what I
23 was apparently missing before. But it's my understanding,
24 again, I asked this question of Mr. Silva, but instead of
25 repeating the RFP bid rule process that was initiated for the

1 WCEC 3 project, basically you took those results, or you were
2 asked by FPL to take those results and basically use them as
3 somewhat of a proxy in lieu of having to repeat the bid rule
4 RFP process for both of the proposed conversion plants that
5 were separately filed as a need determination. Is that
6 correct?

7 **THE WITNESS:** That's correct. Basically, the
8 proposals that had come in in mid-February and the issue of the
9 conversion units was being considered in early April. So less
10 than two months had transpired, and I felt that that
11 information was still rather fresh.

12 **COMMISSIONER SKOP:** And I noticed in your analysis
13 you made various assumptions and all of those seem to be at
14 least reasonable from walking through the analysis. I believe
15 in AST-2 -- I think I had just some quick questions there.
16 Actually, let me go back to your prefiled testimony first on
17 Page 13. At least the long-term PPAs that came in for the WCEC
18 3 project that were submitted in consideration for the RFP, you
19 adjusted those as you deemed appropriately based upon your
20 expertise to account for those in terms of the conversion
21 projects as alternatives that would be available in the market,
22 is that correct?

23 **THE WITNESS:** That's correct.

24 **COMMISSIONER SKOP:** Okay. And on AST-2, I think
25 that -- just the quick questions I had in passing. And, again,

1 I think AST-2 was helpful to me because it underlined the
2 assumptions that were made and the methodology which really
3 wasn't clear to me to begin with. Again, departure from a bid
4 rule, at least in terms of protecting the consumer, I think is
5 a little bit of a big thing, although the way -- it sounds like
6 a big thing, but in terms of my understanding, it is just
7 merely a screening analysis. And I would much more prefer, you
8 know, getting down, if the self-build option falls out of the
9 sky as you probably heard me say earlier, getting to the nuts
10 and bolts instead of having to go through a repetitive process
11 that really doesn't mean anything but a hill of beans to me
12 other than the cost guarantees that are kind of implied in the
13 bid rule.

14 But one of the questions that I had, and I think this
15 was towards the back of your analysis on AST-2, Page 8, it was
16 a comparison in Figure 1 of capacity price profiles. And
17 towards the bottom of that page -- actually, I may have lost my
18 spot. It may be on the prior page. It was on the prior page
19 on Page 7, and it states, "Sedway Consulting used an escalating
20 pattern that yielded the same long-term present value of
21 revenue requirements. A traditional revenue requirement
22 profile results in the highest capital charges of the projected
23 early years." I think what I was looking at is -- and, again,
24 I apologize because I'm trying to find the page. I think that
25 what I'm seeing is perhaps that curve on Figure 1 where it

1 shows the assumption that you made versus the traditional
2 assumption where you start with the highest and go to the
3 lowest. Yours assumes start with the lowest and ramp up to the
4 highest, is that correct?

5 **THE WITNESS:** That's correct. And this is in the
6 context of what I have referred to in my documentation as the
7 filler unit that would fill in behind a short-term PPA that may
8 be three years, five years, 15 years, what have you. So it's a
9 way of kind of --

10 **COMMISSIONER SKOP:** Okay. And that would be, I
11 guess, Footnote 4 as described on Page 7 where it talks about
12 the two-on-one F series kind of like combined cycle unit as the
13 filler.

14 **THE WITNESS:** That's correct.

15 **COMMISSIONER SKOP:** And, I guess, just one question
16 that I had. And, again, it's good to get your expert opinion,
17 because, again, you do this for a living. But in terms of the
18 proxy that was used as the substitute for, you know, not having
19 to repeat the bid rule requirement for going out for an RFP
20 that is temporally almost in the same type period, so I can see
21 some efficiencies there.

22 That RFP process, all it does is fall out into a
23 screening analysis, and correct me if I'm wrong in this,
24 because I will get to my question. But the RFP process results
25 in proposals that are comparatively ranked, and what you are

1 looking for is a screening that indicates that the cumulative
2 present value revenue requirement is positive so that you are
3 seeing a net benefit for perhaps the self-build option over
4 other alternatives, is that correct?

5 **THE WITNESS:** That is correct. I think it may be
6 more of a semantic detail. Screening in my evaluation work
7 suggests a lighter touch and a faster more simplified process.
8 I think the analysis that went into this solicitation was
9 really rather detailed. But you are absolutely right, as far
10 as the general concepts, it is identifying which portfolio is
11 going to be the least-cost portfolio.

12 **COMMISSIONER SKOP:** Okay. And I guess to that point,
13 and, again, I'm generalizing because, I mean, it probably would
14 bore everyone with the details, but if the self-build option
15 falls out of that decisional screening calculus as the most
16 cost-effective avoided cost alternative, is there more value in
17 doing that screen over and above if self-build does fall out of
18 that, the details associated with what is the most
19 cost-effective self-build option?

20 I guess to me -- and let me clarify. The screen
21 itself is a process, but probably nine times out of ten the
22 self-build option is probably, particularly on the conversion,
23 is going to show up as the most cost-effective alternative. So
24 assume that you go through the RFP bid process, or a proxy
25 thereof, and you determine that self-build is the most

1 appropriate cost-effective alternative on an avoided cost
2 basis. Then would the more relevant analysis then become what
3 is the most cost-effective self-build alternative? Because I'm
4 kind of trying to get a little bit of your expert opinion on
5 that?

6 **THE WITNESS:** Right. It's generally the process, and
7 this is really what FPL did, as well, of putting their best
8 foot forward by doing the self-build analysis first, trying to
9 determine from the system alternatives that they have available
10 to them, which are a variety of things, not just self-build,
11 but DSM and the renewable resources, what have you. They do
12 the comprehensive analysis first and try and find the best plan
13 that they could put forward. So I believe that West County
14 3 and the conversion units went through that kind of background
15 kind of analysis first where FPL determined that those were the
16 best resources they could put forth, and then with West County
17 3 there was the RFP process to see from a market test
18 standpoint if there was anything better that independent power
19 producers could provide instead.

20 **COMMISSIONER SKOP:** Okay. And I'm trying to
21 fine-tune my questions, but, again, I'm trying to think about
22 ten million different things on the fly often, so I don't have
23 a lot of time to kind of be as concise as I probably should be.
24 But, I guess, specifically for the conversion projects, if the
25 self-build option is the most cost-effective alternative, would

1 it then be more appropriate to look at what the most
2 cost-effective self-build alternative is in terms of whether
3 the utility undertakes the project on themselves as a full EPC,
4 or you get an EPC contract, or a turnkey solution from one of
5 the providers, maybe Black, Vtech, or GE, should there be some
6 analysis in that part in terms of what the most cost-effective
7 alternative would be?

8 **THE WITNESS:** Perhaps. I'm understanding your
9 question better now. You're talking really about the business
10 structure of assuming you are going to do, say, a conversion
11 project at Cape Canaveral, whether that would be entirely an
12 FPL self-build proposition, or whether it would have some build
13 on transfer where an IPP came in and did the work. Again,
14 usually that is best done as part of the initial considerations
15 so that FPL knows what it is putting out on the table in terms
16 of the evaluation process here.

17 I think that there can be some value issue alluding
18 to in your discussions with Mr. Silva of having an independent
19 power producer come in and do a build on transfer with the
20 utility. And I have overseen that process of overseeing the
21 negotiations associated with it. It can become complicated,
22 though, on two fronts that I have seen.

23 **COMMISSIONER SKOP:** Can I stop you there, because I
24 really wasn't referring to it in terms of the IPP or build on
25 transfer. It was more of an EPC type contract instead of

1 building it yourself and issuing -- you know, you being the
2 construction or project manager lead undertaking that role.
3 Just a turnkey solution to an industry provider like Black, or
4 Vtech, or GE, because certainly they install their own
5 equipment, or some other turbine manufacturer, and they just
6 basically come in, install their equipment, turn over the keys
7 and leave.

8 So, I mean, I would suspect that you would get
9 various bids whether FPL says we can do it for this, GE maybe
10 says we can do it for less than that, or some new guy may be
11 Hyundai Turbines comes into play and says we can do it for half
12 that cost, but, you know, you would probably go with the tried
13 and proven EPC provider to the extent that you get what you pay
14 for. You need electricity, you need reliability, you need
15 availability, and you can't take chances like that.

16 But I guess what I'm trying to flesh out here is to
17 me the bid rule seems to be a little bit superficial to the
18 extent that it has two aspects. It is a screening tool to
19 identify what the most cost-effective alternative is, and it
20 has, though, protective measures that protect the consumers
21 from cost overruns if the bid rule is followed. But if you
22 depart from the bid rule you kind of waive those rights, but
23 also, too, I'm trying to make sure that there is value in that
24 departure. If there is a self-build option, and that is what
25 materializes out of the screening analysis, then how then do we

1 ensure that the consumer is getting the best value on the
2 self-build? And that is just kind of what I'm trying to hit
3 at, whether there should maybe be -- you know, is there
4 adequate protection under that. I'm sure that staff reviews
5 FPL's contracts and such like that, but when you depart from
6 the bid rule you kind of give up a lot of that protection.

7 **THE WITNESS:** Yes. I think it's fair to say that for
8 either self-build or IPP developed projects there are prices,
9 if you will, that are put on the table at the evaluation stage
10 and the negotiation stage. And often the actual development of
11 the facility may involve going back and negotiating with
12 various EPC contractors or a suite of different firms that are
13 going to be supplying different elements of the project. And
14 often those negotiations aren't concluded until after a
15 contract is already awarded or until after a project, a utility
16 self-build project is approved by the Commission.

17 So there's always a certain amount of optimization,
18 if you will, that's going on after the formal selection of a
19 project, and I would anticipate that FPL will probably be
20 talking to a number of firms and getting all the pieces pulled
21 together for all three of the projects that it has got before
22 the Commission right now. But others on the team would probably
23 be in a better position to answer the details of that.

24 **COMMISSIONER SKOP:** And I appreciate that discussion
25 and dialogue, because, again, this is my first combined cycle

1 project since I have been on the Commission. I mean, I'm
2 familiar with the technology, obviously, but what occurred to
3 me is that the whole turnkey EPC type contract never really
4 comes into the front end of that bid process under the bid rule
5 because the RFP typically attracts either somebody offering a
6 power purchase agreement, or a PAA, or a greenfield type
7 solution under an IPP, and you really never get to the nuts and
8 bolts if you drop out of the self-build option. So I am just
9 looking for transparency to protect the ratepayer and make sure
10 we are getting the best deal for consumers.

11 I mean, self-build is great. If we can do it cheaper
12 and it is a better deal than a long-term PPA or a better deal
13 than dealing with the IPP, so be it, you know, that is a great
14 thing. But then it becomes if you are going to build something
15 how cost-effective can you build it? For instance, if I was
16 going to shop for a car and I could pick between a Porsche, a
17 Lamborghini, and a Maserati. Well, obviously I think probably
18 the Porsche would be the most cost-effective alternative there
19 over the other two models.

20 So, again, they are all cars and they are all sports
21 cars, but at the end of the day for the consumers that have to
22 pay for it, we need to make sure that if we go self-build we
23 are getting the best value and the best price and that's the
24 only thing I'm concerned about, really, in that departing from
25 the bid rule we are giving up some of those protections for

1 overruns. So thank you.

2 **CHAIRMAN CARTER:** Commissioners, anything further?

3 Mr. Anderson. One second. Staff.

4 **MS. BROWN:** We have no questions.

5 **CHAIRMAN CARTER:** Mr. Anderson, you're recognized.

6 **MR. ANDERSON:** If I might, I just want to offer a
7 legal point of comment just to help us think together for a
8 moment, because Commissioner Skop's comments really focused on
9 the bid rule for a moment.

10 Let's take a couple of steps back and think about
11 what the fundamental protections are for customers when we
12 build anything, be it a transmission line or anything. Really,
13 it is the full panoply of rights this Commission has to assess
14 our prudence. That is always on the table. We always have
15 those obligations and we fully recognize those.

16 The overall function of the bid rule, as I think we
17 recognize, is to ensure that the right resource is selected.
18 And, you know, the portion of the bid rule which we are talking
19 about was adopted, you know, back when there were significant
20 contested cases with merchant developers, considerable heated
21 litigation at the Commission where assertions were made that
22 the utility might have a perverse incentive to underbid, and we
23 don't have any of those considerations here.

24 Just one other small point from a legal perspective
25 just to reflect on together. Commissioner Skop earlier

1 indicated the idea that if a utility came in at a price lower
2 than our expected price, you know, the idea of there being an
3 incentive or a bonus. We all recognize, though, as attractive
4 an idea as that is from certain perspectives that's not how
5 regulation works. Our customers, in the event we are able to
6 contract for the project, you know, get real good prices on
7 labor, all of those things, if we bring it in less expensive
8 our customers get all of that benefit. That's the way it is.

9 So the key focus just, I think, for all of us to keep
10 in mind is we fully acknowledge our obligation to this
11 Commission always to demonstrate the prudence of the decisions
12 we make whether it be turnkey, or EPC, or whatever particular
13 matter. But these are excellent considerations, I just wanted
14 to add that legal point at this juncture. That's all we had to
15 say.

16 **CHAIRMAN CARTER:** Commissioner Skop.

17 **MS. BROWN:** Mr. Chairman, if I might add. Mr.
18 Anderson will have an opportunity to make those arguments in
19 his post-hearing brief.

20 **CHAIRMAN CARTER:** Thank you. Commissioner Skop.

21 **COMMISSIONER SKOP:** Thank you, Mr. Chairman.

22 And I think Mr. Anderson's concerns and points that
23 he made and clarification are well taken. You know, I
24 understand that the bid rule historically was initiated at a
25 time where there was encroachment by the IPPs, or attempted

1 encroachment, and it may for all intents and purposes have
2 outlived its useful life. Again, I sit here scratching my head
3 why we are having to go through a bid rule process, when I
4 don't even have to go through the bid rule to know what the
5 result is going to be in terms of self-build, based on the
6 circumstances, would be the most cost-effective option. It is
7 just a matter of making sure.

8 And, you know, I know that the point that you made
9 about it is incumbent upon the utility and they don't need to
10 be incentivized, which sometimes you guys come in here and tell
11 us you need to be incentivized to do the most basic things.
12 And, particularly in light of renewables, you guys make the
13 statement openly you should be incentivized to do it, which is
14 disappointing in some regards.

15 But my point that I was trying to make was that if
16 there -- I would just like to see, you know, the feedback. You
17 know, the track record. If you guys say that you are going to
18 do it for this, and you consistently improve on that track
19 record, then I can take that to the bank. But, you know, the
20 whole thing is when we are waiving that bid rule requirement no
21 matter how obsolete or useless it is, that's kind of like
22 giving a blank check for costs to rise over and above what you
23 commit to in the course of a need determination proceeding.

24 I mean, I read the language. I can reread it again,
25 but that is my take on that. So if we were to waive the bid

1 rule without any additional stipulation by the utility, we are
2 giving you a blank check for cost overruns, because we are not
3 bound by the limiting language that if a public utility selects
4 a self-build option, costs in addition to those identified in
5 the need determination proceeding, i.e., what we are going
6 through right now, shall not be recoverable unless the utility
7 can demonstrate that such costs were prudently incurred and due
8 to extraordinary circumstances.

9 To me this would be something of great value and
10 benefit to the consumers. And I'm not willing to waive that
11 part of it. So I hope that in the course of this proceeding
12 that you guys are willing to kind of stipulate to that, because
13 we need to protect the consumers. And you guys have listed the
14 numbers of the proposed projects and what the costs would be in
15 the course of the need determination proceeding, but if we
16 grant your deviation or your departure from the bid rule, we
17 don't have that protective language in there to protect the
18 consumers.

19 Now, if I'm wrong, tell me I'm wrong. But if I'm
20 not, then I think that that is an issue that needs to be dealt
21 with. And I'm aware that staff is working with you guys on
22 that, but you guys have not yet stepped up to the plate.

23 **MR. ANDERSON:** I really appreciate you sharing your
24 thoughts in such detail, because as we brief this that will
25 permit us to address these points very well. The one idea I

1 would leave life you with, though, is in this business truly we
2 feel there are no blank checks. We have an obligation to you
3 from dollar one in all respects.

4 **COMMISSIONER SKOP:** That's not my question. I wanted
5 a yes or no to my question. There is protective language that
6 adequately protects the consumers in the bid rule, so I want a
7 yes or no. If we were to waive the bid rule would we have that
8 protective language, absent a stipulation from the utility?

9 **MR. ANDERSON:** If the bid rule is waived, as we are
10 requesting, the provision in Subsection 15 as it is written
11 there would not apply subject to the ordinary prudence
12 standards that we have talked about, yes.

13 **COMMISSIONER SKOP:** Thank you.

14 **CHAIRMAN CARTER:** I think that in the process of
15 briefing, the issues that have come before us, we will just put
16 those in it, and that way it will be a transparent and open
17 process so everyone can see that.

18 Anything further with this witness? Okay. Let's
19 deal with exhibits.

20 Yes, sir.

21 **COMMISSIONER SKOP:** Thank you, Mr. Chairman. Just as
22 a point of clarification. And, again, I would hope that staff
23 would address this appropriately in the post-hearing briefs,
24 because I don't see it really mentioned in their discussion of
25 the waiver of the bid rule requirement in the prehearing

1 statement. So that needs to be addressed. Thank you.

2 **CHAIRMAN CARTER:** Commissioner, I think that
3 everybody is listening now, and I think that Mr. Anderson has
4 made representation that they will put that within the confines
5 of the documents and we will be able to see that. It will be
6 open and transparent.

7 Commissioner Argenziano.

8 **COMMISSIONER ARGENZIANO:** And that will be elaborated
9 upon, because that is a point that I now would like more
10 information on.

11 **CHAIRMAN CARTER:** Absolutely. I think that is an
12 area of interest that we all share at this point in time, and
13 it would be a good idea to have that issue briefed and have it
14 within the confines of the documents so we can all sit back and
15 review it at the appropriate time.

16 **COMMISSIONER SKOP:** And I hate to prolong this, but,
17 again, in terms the staff initial position, I mean, frankly we
18 need to have open transparency on that, too. I mean, that is a
19 big consideration and it is not even mentioned in passing. So
20 my question is is part of the Commission's task is to uphold
21 the public trust and interest, and we need to make sure that
22 we're doing what we're doing here through the process. Thank
23 you.

24 **CHAIRMAN CARTER:** As you say, Commissioner, that's
25 the staff's initial position. We have got exhibits number --

1 Mr. Anderson.

2 MR. ANDERSON: Exhibits 47 and 48 and 95 and 96, sir.

3 CHAIRMAN CARTER: Exhibits 47 and 48 and Exhibits
4 95 and 96?

5 MR. ANDERSON: We offer them, sir.

6 CHAIRMAN CARTER: Any objection? Without objection,
7 show it done.

8 (Exhibits 47, 48, 95, and 96 admitted into the
9 record.)

10 CHAIRMAN CARTER: You may be excused. Call your next
11 witness.

12 THE WITNESS: Thank you, Chairman.

13 MR. ANDERSON: FPL calls as its next witness Mr. John
14 Gnecco.

15 CHAIRMAN CARTER: Say again, Mr. Anderson?

16 MR. ANDERSON: John Gnecco, G-N-E-C-C-O.

17 JOHN GNECCO

18 was called as a witness on behalf of Florida Power & Light
19 Company, and having been duly sworn, testified as follows:

20 DIRECT EXAMINATION

21 BY MR. ANDERSON:

22 Q Mr. Gnecco, have you been sworn yet?

23 A Yes, I have.

24 Q Would you tell us your name and your business
25 address?

1 A Yes. My name is John Gnecco, 700 Universe Boulevard,
2 Juno Beach, Florida 33410.

3 Q By whom are you employed and in what capacity?

4 A Florida Power and Light as Manager of Project
5 Development.

6 Q Have you prepared and filed 20 pages of Prefiled
7 Direct Testimony in this proceeding regarding West County Unit
8 3?

9 A Yes, I have.

10 Q Did you file an errata?

11 A Yes, I did.

12 Q Do you have any changes to your testimony other than
13 that stated in your errata?

14 A No, I do not.

15 Q If I asked you the same questions contained in your
16 Prefiled Direct Testimony, save for the errata, would your
17 answers be the same?

18 A Yes, they would.

19 **MR. ANDERSON:** FPL asks that Mr. Gnecco's prefiled
20 direct testimony be inserted into the record as though read.

21 **CHAIRMAN CARTER:** The prefiled testimony will be
22 inserted into the record as though read.

23 BY MR. ANDERSON:

24 Q Do you have some exhibits?

25 A Yes, I do.

1 **Q** Those are JCG-1 to JCG-8?

2 **A** That is correct.

3 **MR. ANDERSON:** Mr. Chairman, those have been
4 premarked as Hearing ID Numbers 6 through 13 in staff's exhibit
5 list.

6 **CHAIRMAN CARTER:** Exhibit Number 6 through 13.

7 **MR. ANDERSON:** Yes, sir.

8 **CHAIRMAN CARTER:** Thank you.

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1 **BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION**

2 **FLORIDA POWER & LIGHT COMPANY**

3 **DIRECT TESTIMONY OF JOHN C. GNECCO IV, P.E.**

4 **DOCKET NO. 08 ____ -EI**

5 **APRIL 8, 2008**

6

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

8 A. My name is John C. Gnecco IV, P.E. My business address is Florida Power &
9 Light Company, 700 Universe Boulevard, Juno Beach, Florida, 33408.

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

11 A. I am employed by Florida Power & Light Company (FPL or the Company) as
12 the Manager of Project Development for Unit 3 at our West County Energy
13 Center (WCEC) site.

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

15 A. I have overall responsibility for the development of the West County Energy
16 Center Unit 3 (WCEC 3).

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

18 A. I received a Bachelor of Science in Civil Engineering from Merrimack
19 College in 1980. Additionally I am a Registered Professional Engineer in the
20 State of Florida, a member of the American Society of Civil Engineers and the
21 Structural Engineering Institute.

22

23 Throughout the 28 years of my career, I have been involved the development,

1 design, engineering and construction of electric power plants, in which I have
2 held numerous positions. Over the last 12 years I have been responsible for
3 the design and engineering of a fuel conversion project on two 800 megawatt
4 (MW) units, two advanced combustion turbine simple cycle projects, and six
5 combined cycle (CC) projects which include WCEC 1 & 2, totaling over
6 9,800 MWs of electrical generating capacity.

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

8 A. I describe the major available generating alternatives which were considered
9 and evaluated by FPL in arriving at the decision to pursue the proposed
10 WCEC 3 generating unit. I describe the site and unit characteristics for the
11 CC generating unit proposed for FPL's WCEC, including the size, type of
12 unit, the heat rate and operating characteristics (i.e., equivalent availability
13 factor, equivalent forced outage rate, capacity factor, and operating costs), the
14 fuel types, the estimated cost of the project, and the projected in-service date.
15 I also discuss FPL's experience with building and operating CC generating
16 units and demonstrate that the assumptions made for the WCEC unit are
17 reasonable and achievable, as well as the construction synergies and
18 efficiencies that will be realized by constructing WCEC 3 for service
19 beginning in 2011 rather than deferring construction to a later time.

20 **Q. Please summarize your testimony.**

21 A. FPL's WCEC 3 will use highly efficient, low-emission CC technology, with
22 which FPL has a great deal of experience building and operating. FPL is
23 confident of the accuracy of its construction cost estimate and projected unit

1 capabilities.

2

3 WCEC is an ideal location for the project because of the existing transmission
 4 infrastructure. Additionally, the selection of the Mitsubishi Power Systems
 5 (MPS) "G" Class advanced combustion turbine technology provides for a
 6 highly efficient plant, the lowest in the state, which also serves to minimize air
 7 emissions. This is the same technology which was selected and approved by
 8 the Commission for Units 1 and 2 at the WCEC site. The site is also a
 9 reclaimed parcel that requires no impact to environmentally sensitive lands
 10 which will further minimize environmental impacts. There are no fuel supply,
 11 transmission, or other constraints that will interfere with FPL's ability to
 12 successfully construct and operate this facility.

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

14 A. Yes. I am sponsoring Exhibits JCG-1 through JCG-9, which are attached to
 15 my direct testimony.

16 Exhibit JCG-1 Typical 3x1 CC Unit Process Diagram

17 Exhibit JCG-2 FPL Operational Combined Cycle Plants & FPL
 18 Combined Cycle Construction Projects in Progress

19 Exhibit JCG-3 WCEC Vicinity Map

20 Exhibit JCG-4 WCEC Aerial Map

21 Exhibit JCG-5 WCEC 3 Proposed Power Block Area

22 Exhibit JCG-6 WCEC 3 Fact Sheet

23 Exhibit JCG-7 WCEC 3 Overall Water Balance

1 Exhibit JCG-8 WCEC 3 Expected Construction Schedule

2 Exhibit JCG-9 WCEC 3 Construction Cost Components

3

4 **I. OVERVIEW OF COMBINED CYCLE TECHNOLOGY**

5

6 **A. Description of Technology**

7

8 **Q. Please describe the major available generating alternatives which were**
9 **considered and evaluated by FPL in arriving at the decision to pursue the**
10 **proposed WCEC 3 generating unit.**

11 A. The major available generating alternatives for consideration include CC
12 technology utilizing advanced combustion turbines (CT), simple cycle
13 technology utilizing advanced CTs, pulverized coal, gas or oil fired steam
14 generator technology, integrated gasification CC technology and nuclear
15 steam generator technology.

16

17 Due to permitting uncertainty with any coal based generation, as well as the
18 longer project development and construction timeline for coal projects, the
19 pulverized coal and integrated gasification CC technology options were ruled
20 out as being viable technology options. Nuclear based generation was ruled
21 out based on the estimated time to license and construct the facility, which is
22 estimated to take at least 10 years. Traditional oil or gas fired steam generator
23 technologies were also not considered due to the inherent efficiency

1 advantages of the CC technology and the cost advantages with the simple
2 cycle technology.

3

4 Based on this, FPL selected the CC technology for its self-build options for
5 detailed evaluation.

6

7 The detailed evaluation to select the FPL's next planned generating unit
8 (NPGU) included 3 x 1 G CC units; the same technology chosen for WCEC 1
9 & 2, and 2 x 1 G CC units at two different sites and in two years. Sites
10 considered included WCEC for years 2011 and 2012 and FPL's Martin site
11 for year 2012.

12 **Q. Please describe the combined cycle technology that will be used for the**
13 **WCEC 3 Project.**

14 A. Referring to Exhibit JCG-1, a CC unit is a combination of CTs, heat recovery
15 steam generators (HRSGs), and a steam-driven turbine generator (STG). Each
16 of the combustion turbines compress outside air into a combustion area where
17 fuel, typically natural gas or light oil, is burned. The hot gases from the
18 burning fuel air mixture drive a turbine, which, in turn, directly rotates a
19 generator to produce electricity. The exhaust gas produced by each turbine,
20 where the temperature is approximately 1,100°F, is passed through a HRSG
21 before exiting the stack at approximately 200°F. The energy extracted by the
22 HRSG produces steam, which is used to drive a STG. The utilization of waste
23 heat from the combustion turbines provides an overall plant efficiency that is

1 much better than that of the CTs or the conventional STG alone.

2

3 Each CT/HRSG combination is called a “train.” The number of CT/HRSG
4 trains used establishes the general size of the STG. In the case of the
5 proposed WCEC 3, three CT/HRSG trains will be connected to one STG,
6 giving rise to the characterization of the project as a “three on one” (3x1) CC
7 unit.

8

9 **B. Operating Advantages**

10

11 **Q. What level of operating efficiency is anticipated for the WCEC 3 Project?**

12 A. In general, CC plants can be expected to achieve a fuel to electricity
13 conversion rate (heat rate) of less than 7,000 Btu/kWh, as opposed to values in
14 the 10,000 Btu/kWh range for conventional steam-electric generating units.
15 FPL anticipates that the new West County CC unit will achieve an average
16 base heat rate of 6,582 Btu/kWh (based on an average ambient temperature of
17 75°F) over the life of the project. The proposed WCEC 3 will therefore
18 produce the same amount of energy as a similarly sized conventional steam
19 plant using, on average, one third less fuel. The addition of this highly
20 efficient unit to the FPL system would improve the system heat rate by 1.4
21 percent, as discussed in FPL witness Rene Silva’s testimony.

22 **Q. Are there other operational advantages to combined cycle technology?**

23 A. Yes. Another advantage of the multi-train CC arrangement is that it allows

1 for greater flexibility in matching unit output to system operating
2 characteristics over time.

3

4 **C. FPL's History of Building and Operating Combined Cycle Plants**

5

6 **Q. Does FPL have experience in building combined cycle plants?**

7 A. Yes. FPL has extensive experience in building CC plants. FPL's first CC
8 plant (Putnam Units 1 & 2) went into service in 1976. As shown in Exhibit
9 JCG-2, FPL has 8,961 MW (net summer) of CC capacity in service and the
10 addition of WCEC 1 & 2 are scheduled to be completed by June 2009 and
11 June 2010, respectively, adding 2,438 MW.

12 **Q. Please describe FPL's history of operating combined cycle plants.**

13 A. FPL has 8,961 MW (net summer) of CC equipment presently in-service which
14 utilize combustion turbines from various manufacturers. These include 30
15 General Electric (GE) 7FA turbines, 4 Mitsubishi/Westinghouse 501F
16 turbines and 4 Westinghouse 501B turbines. FPL's expertise with these
17 advanced combustion turbines and FPL's commitment to total operational
18 quality enabled FPL to achieve an operating run of 203 consecutive days at
19 Martin Unit 3 — a world record for F technology GE equipment at that time.

20

21 In addition to its CC operating experience, FPL has extensive experience
22 operating simple-cycle combustion turbines, which comprise the "front end"
23 of the CC technology. FPL has operated ten GE 7FA combustion turbines in

1 simple-cycle mode at its Fort Myers and Martin plant sites in Florida. FPL
2 also has been operating 48 smaller simple-cycle combustion turbine units for
3 approximately 30 years.

4 **Q. Please describe FPL's track record in building and operating combined**
5 **cycle units.**

6 A. In meeting its obligation to serve, FPL has demonstrated its ability to
7 construct reliable and efficient plants. For example, in 1994 FPL began
8 commercial operation of two new combined cycle units at FPL's Martin plant
9 and, just two years later, FPL was awarded Power Magazine's Power Plant of
10 the Year Award for world-class performance in operation and maintenance (O
11 & M) and availability for those units. In addition, other FPL projects have
12 been recognized on numerous occasions. The Turkey Point Expansion Project
13 (Turkey Point Unit 5) was recognized by Power Engineering magazine as the
14 "Best of the Year" gas-fired project in 2007. Both the Fort Myers
15 Repowering Project and Sanford Repowering Projects were recognized by
16 Power magazine as "Top Plants" of the year in 2003 and 2004, respectively.

17
18 To ensure ongoing best-in-class performance in today's highly competitive
19 electricity generating industry, FPL focuses on excellence in people,
20 technology, business and operating processes. FPL promotes a shift team
21 concept in its power plants that emphasizes empowerment, engagement and
22 accountability, with an understanding that each employee has the necessary
23 knowledge, skill and motivation to perform any required task. This

1 multifunctional, team-driven and well-trained workforce is the key to FPL's
2 ability to consistently meet and often exceed plant performance objectives.

3

4 With world-class operational skills from which to draw, the Company
5 maximizes the value of its existing and new assets by employing the best
6 practices that underlie FPL's industry-leading positions. FPL's fossil-fueled
7 fleet continues to achieve an above average availability compared with the
8 U.S. industry average.

9 **Q. Please describe how FPL monitors the operational performance of its**
10 **power plants.**

11 A. Technology helps FPL optimize plant operations, gain process efficiencies
12 and leverage the deployment of technical skills as demand for services
13 increases. An example is the Company's Fleet Performance and Diagnostics
14 Center (FPDC) in Juno Beach, Florida. The FPDC provides FPL the
15 capability to monitor every fossil-fueled plant in its system. The Company
16 can compare the performance of like components on similar generating units,
17 determine how it can make improvements and prevent problems before they
18 occur. Live video links can be established between the FPDC and plant
19 control rooms to immediately discuss, prevent and solve problems. In 2001,
20 FPL was presented with an Industry Excellence Award from the Southeast
21 Electric Exchange for the FPDC. The proposed WCEC 3 CC project will be
22 connected to the FPDC.

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II. WCEC 3 COMBINED CYCLE PROJECT

A. Site Description

Q. Please describe the existing facilities at the WCEC Plant site.

A. The WCEC site is a 220-acre parcel of land located in western Palm Beach County, a vicinity map of the site is presented on Exhibit JCG-3.

As shown on an aerial photograph of the site, Exhibit JCG-4, the construction of the first two units, WCEC 1 & 2 are well underway. Unit 1 is the northern most plant which is furthest along in construction, with Unit 2 located directly to the south. The proposed Unit 3 will be located directly south of Unit 2 where some of the temporary construction facilities are located. Prior to the mobilization for the construction of Units 1 & 2, the site was comprised of lands which were partially reclaimed and restored after mining of lime rock on the northern 50-acres of the site. Generally, the site predominately has been in agricultural use for the past 30 years, with some limited mining of lime rock on the northern 50-acres. Adjacent lands to the east and north have been extensively mined for lime rock for the last 15 years. Current mining of lime rock continues to the northwest of the site.

Q. Why was the WCEC site selected over other potential sites?

A. In previous site selection studies, FPL has looked at sites located in Miami-Dade County (Levee), Broward County (Andytown), Palm Beach County

1 (West County, previously identified as Corbett), Martin County (Martin) and
2 St. Lucie County (Midway). The acquisition of the WCEC site in 2004 was
3 significant because the site was acquired with all structural fill in-place, no
4 wetland impacts, all zoning in place and with the necessary transmission
5 interconnection queue requests in place (i.e., “power plant ready”).

6

7 WCEC is unique in that it has many attributes which make it one of the best
8 power plant sites in Florida. These attributes include:

9

- 10 1. Located in the southeast region of our service territory, which is our
11 load center.
- 12 2. Adjacent to our 230kV/500kV transmission system.
- 13 3. Currently zoned for power plant development.
- 14 4. Access to two major natural gas transmission systems, Florida Gas
15 Transmission (FGT) to the east and Gulfstream to the north.

16

17 It is these attributes, along with the ability to utilize synergies with the
18 currently on-going construction of Units 1 and 2 at the WCEC which factored
19 into the selection of WCEC 3 in 2011 as the NPGU.

1 **B. Project Description**

2

3 **Q. Please describe the proposed WCEC 3 project in more detail.**

4 A. The general arrangement of WCEC 3 is shown on Exhibit JCG-5. It will be a
5 3x1 CC unit consisting of three 230-MW G Class advanced CTs, with dry
6 low-NO_x combustors, and three HRSGs, which will use the waste heat from
7 the CTs to produce steam to be utilized in a new steam turbine generator.

8

9 Each CT unit will utilize inlet air evaporative cooling. Evaporative coolers
10 achieve cooling using water to cool the inlet air. This allows additional power
11 to be produced more efficiently. For the MPS Frame G CT, an 8°F average
12 decrease in temperature typically results in a three percent increase in power
13 and an associated 0.5 percent decrease in heat rate. Thus, while power
14 increases, the production of power is more efficient with lower emissions per
15 MWh generated.

16

17 The evaporative coolers normally would be utilized when the ambient air
18 temperature is greater than 60°F. Given an average annual temperature for the
19 FPL system of approximately 75°F, the output and heat rate benefits of
20 evaporative cooler operation are included in the base rating of 1,115 MW (net
21 summer) for WCEC 3 and a base operation heat rate of 6,582 Btu/kWh.

22

23 Each HRSG will include duct burners. The duct burners can be fired during

1 peak demand periods to add an additional 104 MW of capacity to the unit at
2 an incremental heat rate of 8,770 Btu/kWh.

3
4 WCEC 3, with a summer generating capacity of 1,219 MW (net) from the
5 base operation and duct burning operating mode capabilities described above,
6 will be among the most efficient electric generators in Florida. The unit will
7 have an estimated equivalent availability factor of approximately 97% and an
8 estimated average forced outage rate of approximately 1%. The expected
9 operating characteristics (i.e., equivalent availability factor, equivalent forced
10 outage rate, capacity factor, and operating costs) of WCEC 3 are shown in
11 Exhibit JCG-6. This highly reliable unit will help maintain the system
12 reliability and integrity of FPL and Peninsular Florida.

13 **Q. Please describe the potential air emissions of the WCEC 3 project.**

14 A. Protecting the environment while providing safe, reliable and economic power
15 to customers is of great importance to FPL. FPL will continue to comply with
16 all applicable regulatory standards through construction and operation of
17 WCEC 3.

18
19 The use of natural gas and advanced combustion controls will minimize air
20 emissions from the WCEC 3 and ensure compliance with applicable emission-
21 limiting standards. Using natural gas minimizes emissions of sulfur dioxide
22 (SO₂), particulate matter (PM) and other fuel-bound contaminants. Similarly,
23 advanced combustion controls minimize the formation of nitrogen oxides

1 (NO_x), and the combustor design limits the formation of carbon monoxide and
2 volatile organic compounds. When firing natural gas, NO_x emissions will be
3 controlled using dry low-NO_x combustion technology and selective catalytic
4 reduction (SCR), which will limit NO_x emissions to 2.0 parts per million
5 volume dry (ppmvd) (@ 15% O₂ on natural gas). Water injection and SCR
6 will be used to reduce NO_x emissions during CC operation when firing light
7 oil. These design alternatives maximize control of air emissions consistent
8 with regulatory requirements for emission rates reflecting use of the “best
9 available control technology.” Taken together, the design of WCEC 3, as
10 with its sister units, will incorporate features that will make them the most
11 efficient and cleanest non-nuclear baseload generating units in Florida.

12
13 Additionally, the selection of WCEC 3 in 2011 will result in the displacement
14 of operating hours of existing, less efficient generation on FPL’s system,
15 thereby reducing FPL’s total system emissions. FPL witness Silva discusses
16 this in his testimony.

17 **Q. What types of fuel will WCEC 3 be capable of burning?**

18 A. The project will be capable of burning two fuel types: natural gas and light
19 fuel oil. In her direct testimony, FPL witness Heather Stubblefield explains
20 how fuel will be supplied to WCEC 3.

1 **C. Water Supply – Access and Availability**

2

3 **Q. What are the water requirements for the WCEC 3 project, and how will**
4 **they be met?**

5 A. The overall water balance for WCEC 3 is shown on Exhibit JCG-7. Primary
6 water uses will be for condenser cooling, combustion turbine evaporative
7 coolers, steam cycle makeup and service water. Water also will be used on a
8 limited basis for NO_x control when using light oil. Condenser cooling for the
9 steam cycle portion will be accomplished using mechanical draft cooling
10 towers with make-up water from reclaimed water or, when this source is not
11 available, from deep Floridan Aquifer wells. The reclaimed water will also be
12 used to replace the currently permitted deep Floridan Aquifer wells and
13 surface waters from the adjacent L-10/12 canals which were permitted as part
14 of WCEC 1 & 2.

15

16 **D. Electric Transmission Interconnection Facilities**

17

18 **Q. How will the WCEC 3 project be interconnected to FPL's transmission**
19 **network?**

20 A. The unit will connect to a 230-kV system substation via new tie lines which
21 will be located adjacent and to the south of WCEC 3.

1 **E. Proposed Construction Schedule**

2

3 **Q. What is the proposed construction schedule for the WCEC 3 project?**

4 A. A summary of construction milestone dates is shown on Exhibit JCG-8. FPL
5 will begin construction upon receipt of the necessary federal and state
6 certifications and permits. The expected construction duration for the WCEC
7 3 project is 24 months, based on the Company's experience constructing
8 Martin Units 3 & 4, Fort Myers, Sanford, Martin Unit 8, Manatee Unit 3 and
9 Turkey Point Unit 5 plants, and the rate of progress for the current
10 construction project of WCEC 1 & 2. Therefore, with a planned in-service
11 date of June 2011 for WCEC 3, the Company anticipates that construction
12 must commence on or before June 1, 2009.

13 **Q. What is the current status of the certifications and permits required to**
14 **begin construction of WCEC 3?**

15 A. The 220-acre site currently has all the necessary zoning approvals, which
16 includes Zoning Petition DOA/EAC 2007-1182 (Resolution R-2007-2144)
17 with Palm Beach County. The project's site certification application was
18 submitted on December 6, 2007, and was deemed complete by the Florida
19 Department of Environmental Protection (FDEP) on March 7, 2008. The
20 project will not require a Land Use Hearing because Palm Beach County
21 issued a determination on land use and zoning consistency which was not
22 disputed. As of April 8, 2008, the Company is awaiting issuance of the FDEP
23 Staff Analysis Report prior to a public hearing, which is expected to occur by

1 the end of 2008. Final approval with the Governor and Cabinet, who sit as the
2 Siting Board, is expected to occur in February 2009. The project's air permit
3 application is currently under review by FDEP.

4

5 **F. Estimated Construction Costs**

6

7 **Q. What does FPL estimate that the WCEC 3 will cost?**

8 A. The current expected installed cost for WCEC 3 is \$864.7 million (2011
9 dollars). This cost includes \$735.8 million for the power block, \$41.6 million
10 for the transmission interconnection and integration (including generator step-
11 up transformers) and \$87.3 million in allowances for funds used during
12 construction (AFUDC) to an in-service date of June 2011.

13

14 The components of the total plant costs are shown in Exhibit JCG-9.

15 **Q. Are these estimated costs for WCEC 3 the same as the estimated costs**
16 **published in the 2007 Request for Proposals for 2011/2012 Capacity**
17 **Needs (RFP)?**

18 A. Yes. The costs are the same as what was provided in the Table VI-1 of the
19 RFP.

20 **Q. Does FPL anticipate any construction synergies and efficiencies by**
21 **constructing WCEC 3 for service beginning in 2011 rather than deferring**
22 **construction to a later date?**

23 A. Yes. FPL anticipates that adding WCEC 3 in June 2011 will result in savings

1 of \$70 million in construction costs due to the efficiencies gained by building
2 the unit in a continuous sequence with WCEC 1 & 2, rather than deferring
3 construction to 2012. These cost savings are a result of not having to
4 remobilize the construction team and construction facilities, being able to
5 share construction supervision and management between multiple units, and
6 being able to exercise options on equipment which were included in the
7 original WCEC 1 & 2 procurement contracts, and construction escalation
8 costs. In addition, construction of WCEC 3 in 2011 provides for greater
9 assurance of water availability for the project.

11 III. CONSEQUENCES OF DELAY

12
13 **Q. What consequences with respect to licensing and construction of WCEC 3**
14 **would be likely if the need determination for the project was delayed?**

15 A. FPL has set an in-service date of June 2011 for WCEC 3. The unit has an
16 overall projected 24-month construction schedule, which dictates that
17 construction begins on or before June 1, 2009. Consistent with this schedule
18 for commencing construction, FPL needs to receive a site certification for the
19 project by the end of February 2009, with the air permit concurrently or
20 shortly after site certification. This remains a realistic timetable for the site
21 certification, but with less than three months between the expected date upon
22 which all approvals would be received and the actual date that construction
23 must begin to support a June 2011 in-service date. It is important that the

1 FDEP receive all agency reports (including the Commission's Need
2 Determination) in a timely matter.

3

4 If the start of construction of the project is delayed beyond June 1, 2009, the
5 introduction of efficient and cost-effective capacity and energy would be
6 delayed to the detriment of FPL's customers. The delay would result in
7 customers not receiving cost-savings benefits and greenhouse gas emission
8 reductions described in the testimonies of FPL witnesses Silva, Sim and
9 Kennard Kosky. In addition, as explained in the testimonies of these
10 witnesses, delaying the project would not permit FPL the opportunity to
11 consider converting existing facilities, which, if conducted, in turn would
12 permit FPL to achieve the aggressive 2017 greenhouse gas emission goals
13 stated in the Governor's Executive Orders, among other benefits.

14

15

IV. CONCLUSION

16

17 **Q. What level of confidence does FPL have in the cost projection and**
18 **construction schedule for the unit discussed herein?**

19

20

21

22

23

A. In establishing the construction schedule and capital cost estimate for the unit,
FPL has drawn upon its design and construction experience in Florida. FPL is
confident that its current design philosophy and construction processes will
allow the Company to complete the power block and associated transmission
interconnections on schedule and in accordance with the expected

1 construction costs.

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

3 A. Yes.

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Florida Power & Light Company's Petition to determine need for West County Energy Center Unit 3 electrical power plant.	DOCKET NO. 080203-EI
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In re: Florida Power & Light Company's Petition for determination of need for conversion of Riviera Plant in Palm Beach County.	DOCKET NO. 080245-EI
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In re: Florida Power & Light Company's Petition for determination of need for conversion of Cape Canaveral Plant in Brevard County.	DOCKET NO. 080246-EI
	Filed: June 19, 2008

ERRATA SHEET

DIRECT TESTIMONY OF JOHN C. GNECCO, IV P.E.; DOCKET 080203-EI

<u>PAGE #</u>	<u>LINE #</u>	<u>CORRECTION</u>
Exhibit JCG-8	Page 1 of 1	LNTP x 4 should be LNTP x 3 for both HRSG and CT orders.

1 BY MR. ANDERSON:

2 Q Mr. Gnecco, do you have a summary of your testimony?

3 A Yes, I do.

4 Q Would you please provide that for the Commission.

5 A Good morning, Chairman Carter and Commissioners. My
6 name is John Gnecco. And as the Manager of Project
7 Development, I'm responsible for the development activities
8 associated with West County Energy Center Unit 3.

9 Beginning back in 2003, we acquired the rights to a
10 220-acre site in Western Palm Beach County, which is now known
11 as the West County Energy Center site. Shortly after acquiring
12 these rights, we began development activities of the site with
13 a proposal to construct the first two of three units at the
14 site. The first two units obtained an affirmative need order
15 from the Commission and a certification order from the siting
16 board in 2006. These two units are currently under
17 construction and are expected to be in commercial operation by
18 June of 2009 for Unit 1 and June of 2010 for Unit 2.

19 The following factors contributed to the logical
20 conclusion that the West County site is the best and most
21 cost-effective location for our next planned generating unit.
22 One, the on-going construction at the site; two, the fact that
23 the site is already zoned for a third unit; three, the site's
24 location to existing transmission infrastructure; four, the
25 location to future fuel supply; and, five, the fact that we

1 already own that site.

2 We considered and evaluated numerous generating
3 alternatives which included combined and simple cycle
4 technologies using advanced combustion turbines, integrated
5 gasification combined cycle, and more traditional steam
6 generating technologies, including pulverized coal, natural
7 gas, oil, as well as nuclear steam generating technology.

8 Regarding the technology chosen, the West County
9 3 project will employ the use of a highly efficient low
10 emission combined cycle technology which we have a great deal
11 of experience both building and operating. Our operating
12 experience dates back to 1976 when we began operation of our
13 Putnam units and spans to today's more advanced combustion
14 turbines like Turkey Point Unit 5, which we just placed into
15 operation last year.

16 FPL currently operates a fleet of 12 combined cycle
17 units, with a similar capacity of approximately 9,000
18 megawatts. Our operational experience, coupled with our recent
19 construction experience at Turkey Point in 2007, Manatee and
20 Martin in 2005, and our on-going construction experience at
21 West County makes us confident of the accuracy of the
22 construction cost estimate and the projected unit capabilities.

23 For West County 3, we have selected the Mitsubishi
24 Power System's G-Class advanced combustion turbine, which
25 provides for a highly efficient plant, the most efficient

1 plants here in the state. This is the same technology which
2 was selected for Units 1 and 2 at West County.

3 Bringing West County 3 into FPL's fleet in June of
4 2011 will allow us to sequence the construction with Units
5 1 and 2. We estimate that these construction efficiency gains
6 will result in a construction cost savings of approximately
7 \$70 million to our customers, which is a direct savings to our
8 customer.

9 This concludes my summary.

10 **MR. ANDERSON:** Mr. Gnecco is available for questions.

11 **CHAIRMAN CARTER:** Commissioner Argenziano, you're
12 recognized.

13 **COMMISSIONER ARGENZIANO:** Thank you. I was told you
14 are the man to speak to for some questions that I had
15 previously. In regards to our consumers who testified today,
16 or our witnesses who came in and basically had a concern on the
17 pipeline being so close to the explosives at the nearby plant,
18 I don't know how many feet, it was mentioned 290 feet. Has
19 that been taken into consideration and what precautions are
20 there?

21 **THE WITNESS:** Yes. What we have done, along with
22 Gulfstream, is factored into the design of not only the power
23 plant, but also the pipeline the fact that there is on-going
24 mining in the area and that could occur within 290 feet of the
25 pipeline. We actually took measurements at the site. Once you

1 understand the amount of ground motion that is going to occur
2 as a result of those blasting operations, then you are able to
3 appropriately design either the pipeline or, in our case, the
4 power plant. So I think we have taken into account the fact
5 that there is an ongoing mining operation out there, yes.

6 **COMMISSIONER ARGENZIANO:** So you are telling me today
7 that you feel as far as a safety factor that those explosions
8 or the mining operation would not interfere or could jeopardize
9 the pipeline?

10 **THE WITNESS:** Absolutely they will not.

11 **COMMISSIONER ARGENZIANO:** They will not absolutely?

12 **THE WITNESS:** Absolutely.

13 **COMMISSIONER ARGENZIANO:** And I asked a question
14 before about the existing plants, especially -- let's see, how
15 do I ask this question? Are the Riviera and the Canaveral
16 plants using the best available control technology for all
17 emissions, not just the CO2?

18 **THE WITNESS:** Currently right now the Riviera plants
19 do not have -- I'll talk more specifically to CO2 right now.
20 Basically, the best way to minimize your carbon emissions right
21 now, I think Mr. Silva talked about that, was through fuel
22 efficiency, and that is to build the most efficient power plant
23 you possibly can. There are no commercially available
24 technologies right now to be able to capture carbon, though,
25 they are under development.

1 **COMMISSIONER ARGENZIANO:** Not just for the carbon,
2 for all of the other emissions. Let's say we can't capture CO2
3 right now. I guess I'm trying to figure out what would be or
4 if they are currently in place in the Riviera and the Canaveral
5 plant, the best available technologies to capture the emissions
6 to control them?

7 **THE WITNESS:** Right now we are employing the best
8 available technology for that vintage power plant. For
9 instance, to give you a few examples, you know, the low-NOx
10 burners in the actual boiler itself.

11 **COMMISSIONER ARGENZIANO:** So what you're saying is
12 there is nothing else available that is a better technology
13 that could get any of the emissions reduced other than what you
14 are using today?

15 **THE WITNESS:** There are things that you can do to the
16 power plant to help reduce the current emissions right now, but
17 they would be back-fit projects where you would go in --

18 **COMMISSIONER ARGENZIANO:** Right.

19 **THE WITNESS:** -- similar to what we have done at
20 maybe our Port Everglades plant.

21 **COMMISSIONER ARGENZIANO:** I understand that. And I
22 guess I'm looking for efficiencies trying to figure out if you
23 did that, because questions that have been posed to me by
24 consumers who have called and asked or have just asked me is
25 there anything you could do to reduce emissions now that would

1 be more cost-efficient, and I'm trying to make comparisons.

2 **THE WITNESS:** No, there is not.

3 **COMMISSIONER ARGENZIANO:** For CO2 you can't. That is
4 what you're saying, and I understand that. But for other
5 emissions there are things you can do retrofitting, and so on,
6 that could reduce the other emissions?

7 **THE WITNESS:** But in those cases it would not be as
8 efficient as actually putting in the combined cycle plants that
9 we are talking about.

10 **COMMISSIONER ARGENZIANO:** Depending on the cost, I
11 guess, to do that, and then you saying the efficiencies as far
12 as emissions.

13 **THE WITNESS:** Yes, it's the efficiency gains of the
14 combined cycle plants that are significant.

15 **COMMISSIONER ARGENZIANO:** I'm sure they would not be
16 the same as converting the plants, and I guess what I'm trying
17 to find out, and maybe staff can find out at the appropriate is
18 how much more efficient could they be. That is what I'm
19 looking at. And how much more reduction of emissions would we
20 have at what cost to the consumer. Because if I'm here for
21 looking at efficiencies, I've got to look at all efficiencies,
22 and that's what I'm trying to determine.

23 **THE WITNESS:** And I think we have employed as much
24 efficiency improvements as we can at those existing facilities
25 today at the Riviera plant. There are no more additional

1 efficiency improvements that we would be able to make.

2 **COMMISSIONER ARGENZIANO:** That was my question.

3 There is nothing you could do right now as far as technology,
4 adding technology. You have the best available there. And I
5 understand CO2 is a different subject.

6 **THE WITNESS:** That's correct, Commissioner.

7 **COMMISSIONER ARGENZIANO:** Okay. That was the
8 question. And let me see if I have another question. Oh, the
9 deep well injection. Could you tell me what treatment level
10 would the water be treated to before it's injected into the --
11 I don't even know what zone you're injecting to.

12 **THE WITNESS:** The water would be injected into the
13 boulder zone, which is approximately 3,200 feet below the land
14 surface. The water that's being injected is basically just
15 cycled up source water as far as any treatment is concerned.
16 In the case of reclaimed water, prior to that reclaimed water
17 actually being sent to the power plant that will go through
18 disinfection and also filtration prior to it actually be
19 shipped to the power plant. Once it's there at the power plant
20 then that water is just simply cycled up and then injected into
21 the boulder zone.

22 **COMMISSIONER ARGENZIANO:** But treated before it gets
23 to the power plant?

24 **THE WITNESS:** Yes, before it even leaves the
25 wastewater treatment plant.

1 **COMMISSIONER ARGENZIANO:** Do you know what level of
2 treatment it would get before?

3 **THE WITNESS:** It would be the same level of treatment
4 that's required under the DEP rules for land application of
5 reclaimed water. So if you have reclaimed water systems where
6 you are able to apply that water to golf courses or residential
7 homes, it is the same level of treatment.

8 **COMMISSIONER ARGENZIANO:** Any research done -- I
9 believe several years ago there were some deep well injection
10 sites that were leaking into the potable zone. I don't know if
11 they were in the boulder zone or not, but they were leaking
12 into the potable zone, and I wonder if you have done any
13 research on that?

14 **THE WITNESS:** Well, actually what we have done is we
15 have actually drilled an exploratory well at the specific site,
16 and we used that, the geologists actually used that to provide
17 the assurances to the DEP prior to the DEP even issuing us our
18 underground injection control well. So we have actually taken
19 site-specific information, the geologists applied that. That
20 was submitted to the DEP, the DEP reviewed that. We provided
21 them the necessary assurances so that when the water is
22 injected into the boulder zone that you have adequate
23 confinement and that it will stay essentially in the boulder
24 zone.

25 **COMMISSIONER ARGENZIANO:** How do you assure adequate

1 confinement, though? Isn't it limestone?

2 **THE WITNESS:** There is about an 800 to 1,200 foot
3 layer of clay material where that actually acts as your
4 confinement layer.

5 **COMMISSIONER ARGENZIANO:** How about horizontally?

6 **THE WITNESS:** That, again, is based on the geology
7 for when you apply for a UIC well, you actually take other
8 readings from around the whole region and you actually show
9 that to the DEP as part of your application.

10 **COMMISSIONER ARGENZIANO:** That is my own personal --

11 **THE WITNESS:** The other thing that I think is
12 important, too, is that once you have the UIC permit to be able
13 to do the injection, you are also required to monitor the upper
14 aquifers to make sure that there is no upheaval of the water up
15 into the upper aquifers.

16 **COMMISSIONER ARGENZIANO:** I don't want to prolong
17 this, but how do you know it is not moving horizontally and
18 moving up in different areas?

19 **THE WITNESS:** Well, it is moving horizontally, and,
20 again, as part of that application you are required to actually
21 do a calculation of how fast it moves, and it does not move
22 very fast, I can tell you that right now.

23 **COMMISSIONER ARGENZIANO:** Let me just see. And my
24 other question is for Doctor Morley.

25 Thank you.

1 **THE WITNESS:** You're welcome.

2 **CHAIRMAN CARTER:** Commissioner Skop, you're
3 recognized.

4 **COMMISSIONER SKOP:** Thank you, Mr. Chairman. And,
5 first, before I ask the witness a question, it appears that I
6 owe an apology to staff, to Tom Ballinger, to Martha, to our
7 legal counsel. Again, I knew that there were some discussions,
8 and, again, I'm man enough to fess up to when I make a mistake.
9 And, again, I've got thousands of pages of materials here that
10 I have read, I missed one sentence. But at the end of Issue
11 24, in all fairness to staff, and, again, my apologies. Issue
12 24, the last sentence of the staff recommendation states and
13 tracks similar to the language in the bid rule that costs in
14 addition to those identified in this need determination
15 proceeding should not be recoverable unless FPL can demonstrate
16 that such costs are prudently incurred and due to extraordinary
17 circumstances.

18 And I think the initial positions of the parties on
19 that issue is that FPL just wants the waiver completely and
20 staff is adding a little bit of meat there, and I apologize
21 from my heart that I missed that. And, again, I'm man enough
22 to admit when I make a mistake. But that is exactly the things
23 that this Commission should be doing to the extent that we need
24 to protect the public interest. So, again, my apologies. And
25 I won't make any more of that, but I feel bad because I missed

1 that one sentence because it was buried on the second to the
2 last page so --

3 **MS. BROWN:** May I add one thing just to give you some
4 comfort. That will be our recommendation to you, and that will
5 be part of the order.

6 **COMMISSIONER SKOP:** And hopefully -- we will leave
7 that alone. But I would expect that those consumer protections
8 would be part of what this Commission does. So, thank you.
9 And, again, I apologize not only to staff, but to my
10 colleagues. I misspoke. And it is easy to make a mistake,
11 but --

12 **CHAIRMAN CARTER:** It's all right, Commissioner. It
13 is a lot of information.

14 **COMMISSIONER SKOP:** Thank you. Just real quick.

15 To Commissioner Argenziano's questions to Mr. Gnecco.
16 I guess her focus was the proximity of the natural gas pipeline
17 to the blasting area, and I think that some of the concerns
18 that she expressed were addressed by you, and thank you for
19 clarifying that. It seems that studies have been done to
20 determine what the vibration levels would be as a result of the
21 blasting that's closely proximate to the generating units, is
22 that correct?

23 **THE WITNESS:** Yes, that is correct.

24 **COMMISSIONER SKOP:** Okay. And I guess my concern, I
25 guess, as it was raised by one -- two of the parties that came

1 for public comment, that raised a little bit of concern to me
2 just because I wanted to make sure it was adequately mitigated
3 either through vibration dampening, or snubbers, or whatever
4 would be necessary to protect the generating equipment from
5 damage if the vibration levels are indeed excessive. I mean,
6 it in similar to a shock, or transient shock event.

7 But based on those studies, which I really don't have
8 in front of me, and it is just like an emerging issue, are
9 there any O&M -- because I assume they effect equally WCEC 1
10 and WCEC 2 that are currently operating or going to be built as
11 equally as they would be the WCEC 3 unit, is that correct?

12 **THE WITNESS:** And, Commissioner, if I could clarify
13 one point. It is the pipeline that is approximately 300 feet
14 away. The actual power plant itself, I think you point out
15 importantly it's the vibrating equipment that is most sensitive
16 to any ground motions, and what we have done with the adjacent
17 mining operations is required them to actually not conduct any
18 blasting, and that is in an agreement with the mining operator
19 to be at least 7,200 feet from the power plant.

20 And in anticipation of that the mining operator has
21 actually preblasted all of the areas of his property to ensure
22 that he maintains the 7,200 feet, because that is by far the
23 most sensitive. And when we establish that criteria with the
24 landowner, we did that to make sure that we weren't going to be
25 required to add any special equipment to the power plant to be

1 able to dampen those vibrations.

2 **COMMISSIONER SKOP:** And I appreciate that. Thank you
3 for that clarification. Because, again, my concern would be if
4 they both had to live in harmony with them conducting
5 operations and you trying to generate electricity with
6 sensitive equipment, whether that would effect the O&M costs
7 such as the alignment or the balancing of the turbines.
8 Because, again, all those things come into play. But
9 apparently it has been properly mitigated at least based on
10 your testimony.

11 **THE WITNESS:** Yes, it is, Commissioner.

12 **COMMISSIONER SKOP:** Thank you so much.

13 **CHAIRMAN CARTER:** Commissioner Argenziano.

14 **COMMISSIONER ARGENZIANO:** Thank you.

15 I did forget a couple of questions on the natural
16 gas, as I asked before. I was under the impression that we
17 don't have an inexhaustible supply of natural gas, and that
18 supply is running low in certain areas, and that that is
19 bringing up the cost of natural gas. And have you taken that
20 into consideration? Is that true and how much natural gas can
21 we rely upon, and how far do you see the prices rising?

22 **THE WITNESS:** Commissioner, that's not my area of
23 expertise. But I do believe that there will be some witnesses,
24 possibly Witness Stubblefield who may be able to answer some of
25 your questions for you with regard to supply-side.

1 **COMMISSIONER ARGENZIANO:** I'll do that. Thank you
2 very much.

3 **THE WITNESS:** You're welcome.

4 **CHAIRMAN CARTER:** Commissioner Skop.

5 **COMMISSIONER SKOP:** Thank you, Mr. Chair. And,
6 again, I have been talking a lot about costs and such like
7 that, but I just wanted to confirm on Page 17 of the prefiled
8 testimony for the WCEC 3 unit, the expected installed cost for
9 WCEC 3 is \$864.7 million, is that correct?

10 **THE WITNESS:** Yes, that's correct.

11 **COMMISSIONER SKOP:** Thank you.

12 **CHAIRMAN CARTER:** Thank you.

13 Commissioners, anything further? Staff.

14 **MS. BROWN:** No questions.

15 **CHAIRMAN CARTER:** Mr. Anderson?

16 **MR. ANDERSON:** No questions.

17 **CHAIRMAN CARTER:** Okay. Let's deal with the
18 exhibits. I think there are on Exhibits 6 through --

19 **MR. ANDERSON:** Thirteen.

20 **CHAIRMAN CARTER:** Mr. Anderson?

21 **MR. ANDERSON:** Six through 13, sir.

22 **CHAIRMAN CARTER:** Six through 13?

23 **MR. ANDERSON:** Uh-huh.

24 **CHAIRMAN CARTER:** Any objections?

25 Without objection, show it done. Exhibits 6 through

1 13 will be entered, and the witness may excused.

2 (Exhibits 6 through 13 admitted into the record.)

3 **CHAIRMAN CARTER:** Go ahead and call your next witness
4 and see how much can we get done.

5 **MR. ANDERSON:** FPL would call as its next witness
6 Cindy Tindell.

7 **CHAIRMAN CARTER:** Cindy Tindell.

8 **MR. ANDERSON:** Chairman Carter, if it is all right,
9 she brought some pictures which are not exhibits, but we
10 thought it might be nice for people to see. May we be
11 permitted to have those up?

12 **CHAIRMAN CARTER:** Yes. You are just using the
13 pictures to present her testimony?

14 **MR. ANDERSON:** That's right.

15 **CHAIRMAN CARTER:** That would be fine.

16 **MR. ANDERSON:** Good afternoon. Have you been sworn?

17 **THE WITNESS:** I have not.

18 **CHAIRMAN CARTER:** Would you please stand and raise
19 your right hand.

20 (Witness sworn.)

21 **CHAIRMAN CARTER:** Mr. Anderson.

22 **MR. ANDERSON:** Thank you.

23 CINDY TINDELL

24 was called as a witness on behalf of Florida Power & Light
25 Company, and having been duly sworn, testified as follows:

DIRECT EXAMINATION

1
2 BY MR. ANDERSON:

3 Q Could you tell us your name and business address?

4 A Cindy Tindell, 700 Universe Boulevard, Juno Beach,
5 Florida 33408.

6 Q By whom are you employed and in what capacity?

7 A Florida Power and Light. I'm Senior Director of
8 Development.

9 Q Have you prepared and filed 21 pages of Prefiled
10 Direct Testimony in this proceeding regarding the conversion
11 dockets, Cape Canaveral and Riviera?

12 A Yes.

13 Q Did you have any errata to your testimony already
14 filed?

15 A No.

16 Q Do you have any changes or revisions to make to your
17 direct testimony today?

18 A Yes, I do.

19 Q Would you tell us what those are real quick?

20 A Yes. Please change the word from "May" to "March" on
21 Page 15, Line 15; on Page 20, Line 14; and on Page 21, Line 10.

22 Q If I asked you the same questions contained in your
23 Prefiled Direct Testimony with those changes that you just told
24 us about, would your answers be the same?

25 A Yes, they would.

1 **MR. ANDERSON:** FPL asks that the prefiled direct
2 testimony be inserted into the record as though read.

3 **CHAIRMAN CARTER:** The prefiled testimony will be
4 entered into the record as though read.

5 BY MR. ANDERSON:

6 **Q** You have 11 exhibits?

7 **A** Yes.

8 **Q** Those are Exhibits CT-1 through CT-11?

9 **A** Yes.

10 **MR. ANDERSON:** Mr. Commissioner, these have been
11 premarked as Hearing ID Numbers 53 through 63 in the staff
12 exhibit list.

13 **CHAIRMAN CARTER:** Exhibits Number 53 through 63.

14 **MR. ANDERSON:** Yes, sir.

15 **CHAIRMAN CARTER:** Thank you, Mr. Anderson.

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1 **BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION**

2 **FLORIDA POWER & LIGHT COMPANY**

3 **DIRECT TESTIMONY OF CINDY TINDELL**

4 **DOCKET NO. 08____-EI**

5 **APRIL 30, 2008**

6

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

8 A. My name is Cindy Tindell. My business address is Florida Power & Light
9 Company, 700 Universe Boulevard, Juno Beach, Florida, 33408.

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

11 A. I am employed by Florida Power & Light Company (FPL or the Company) as
12 the Senior Director of Development, leading the Fossil Group.

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

14 A. I lead FPL's efforts to develop non-nuclear generation including new plants
15 and the conversion of older plants. I have overall responsibility for the
16 conversion of our plants at Cape Canaveral and Riviera.

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

18 A. Prior to my current position, I served as Executive Director of Development in
19 FPL Energy where I was responsible for acquisition and development
20 activities, leading alternative energy investments, and asset and contract
21 restructurings. Prior to joining FPL Energy, I served in investment and
22 finance positions with Credit Suisse First Boston and GE Capital Corporation
23 and as an official at the U.S. Department of State. I hold an undergraduate

1 degree from Georgetown University, a master's degree from Columbia
2 University and an MBA from Harvard Business School.

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

4 A. The purpose of my testimony is twofold. First, I provide a summary of the
5 generation alternatives that were evaluated in arriving at the decision to
6 pursue the proposed conversions of the Cape Canaveral and Riviera plants and
7 why the combined cycle technology and conversion processes were selected.
8 Second, I describe the two conversion projects in detail including a
9 description of the sites, the applied technology, water usage, air emissions,
10 transmission tie-ins, certification and permit plans, construction schedules,
11 and project costs.

12 **Q. Please summarize your testimony.**

13 A. FPL plans to convert the Cape Canaveral plant, with units dating from 1965
14 and 1969, respectively, and the Riviera plant, with units dating from 1962 and
15 1963, respectively, into modern, highly efficient, lower-emission Next
16 Generation Energy Centers using the latest combined cycle (CC) technology.
17 The conversions will result in increased power generation without using any
18 additional land, water sources or transmission rights-of-way. The Cape
19 Canaveral plant will be renamed the Cape Canaveral Energy Center (CCEC)
20 and is expected to have an in-service date of June 2013. The Riviera plant
21 will be renamed the Riviera Beach Energy Center (RBEC) and is expected to
22 have an in-service date of June 2014.

1 The converted plants will deliver lower cost, more efficient, and cleaner
2 energy to our customers. The plants will use at least 33% less fuel for an
3 equivalent amount of energy production. Moreover, they will be capable of
4 producing nearly 80% more power based on expected summer capacities.
5 Each will be configured with three of the latest generation combustion
6 turbines (CTs) and three heat recovery steam generators (HRSGs) combined
7 with one steam turbine generator. By using natural gas as a primary fuel and
8 technology recognized by the Florida Department of Environmental
9 Protection (FDEP) as the Best Available Control Technology for controlling
10 air emissions, the plants will minimize air emissions and will be among the
11 cleanest power plants in Florida. The converted plants will continue to draw
12 water from existing sources and will not exceed existing permitted water
13 limits.

14
15 The conversions also have non-economic benefits. The aesthetics will
16 improve significantly. At CCEC, the stacks will be lowered from
17 approximately 400 feet to 150 feet, while at RBEC, the stacks will be lowered
18 from approximately 300 feet to 150 feet. The projects will use natural gas as
19 the primary fuel and will be capable of burning ultra low sulfur light oil as a
20 backup fuel. Due to their location on the coast of Florida, both plants will be
21 able to receive backup fuel from water borne deliveries, which is a significant
22 advantage particularly in emergency situations compared to in-land plants.

23 FPL has a great deal of experience building and operating CC plants to

1 achieve the best possible efficiencies. Further, FPL has proven its ability to
2 modernize older plants through three recent examples. FPL is confident of the
3 accuracy of its construction cost estimates and projected unit capabilities.

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

5 A. Yes. I am sponsoring Exhibits CT-1 through CT-11, which are attached to my
6 direct testimony.

7	Exhibit CT-1	FPL Operational Combined Cycle Plants & FPL
8		Combined Cycle Construction Projects in Progress
9	Exhibit CT-2	CCEC Vicinity Map
10	Exhibit CT-3	CCEC Site Layout with Power Block
11	Exhibit CT-4	CCEC Fact Sheet
12	Exhibit CT-5	CCEC Expected Construction Schedule
13	Exhibit CT-6	CCEC Construction Cost Components
14	Exhibit CT-7	RBEC Vicinity Map
15	Exhibit CT-8	RBEC Site Layout with Power Block
16	Exhibit CT-9	RBEC Fact Sheet
17	Exhibit CT-10	RBEC Expected Construction Schedule
18	Exhibit CT-11	RBEC Construction Cost Components

1 **I. SELECTION OF GENERATION TECHNOLOGY AND**
2 **DECISION TO PURSUE PLANT CONVERSIONS**

3

4 **Q. Please describe the major available generating alternatives which were**
5 **considered and evaluated by FPL in arriving at the decision to pursue the**
6 **proposed projects.**

7 A. Major generating alternatives include CC technology utilizing advanced CTs,
8 simple cycle technology utilizing advanced CTs, pulverized coal, gas or oil
9 fired steam generator technology, integrated gasification CC technology and
10 nuclear steam generator technology.

11

12 Due to recent decisions rejecting new coal-based generation in Florida, as well
13 as the longer project development and construction timeline for coal projects,
14 the pulverized coal and integrated gasification CC technology options were
15 ruled out as viable technology options. Nuclear based generation was ruled
16 out based on the estimated time to license and construct the facilities, which is
17 estimated to take at least 10 years. Traditional oil or gas fired steam generator
18 technologies were also not considered due to the inherent efficiency
19 advantages of the CC technology and the cost advantages compared to the
20 simple cycle technology.

21

22 Based on these factors, FPL selected the CC technology as the most efficient
23 and cost-effective for its capacity.

1 **Q. Please describe the combined cycle technology that will be used for the**
2 **Projects.**

3 A. A CC unit is a combination of CTs, HRSGs, and a steam-driven turbine
4 generator (STG). Each of the CTs compress outside air into a combustion
5 area where fuel, typically natural gas or light oil, is burned. The hot gases
6 from the burning fuel air mixture expand across the turbine section, which, in
7 turn, provides mechanical energy to the generator for the production of
8 electrical energy. The exhaust gas energy produced by each turbine, where
9 the temperature is approximately 1,100°F, is passed through a HRSG before
10 exiting the stack at approximately 200°F. The energy extracted by the HRSG
11 produces steam, which is used in a conventional STG cycle. The utilization of
12 waste heat from the combustion turbines provides an overall plant efficiency
13 that is much better than that of the CT's cycle or the conventional STG cycle
14 alone.

15
16 Each CT/HRSG combination is called a "train." The number of CT/HRSG
17 trains used establishes the general size of the STG. For the proposed CCEC
18 and RBEC projects, three CT/HRSG trains will be connected to one STG,
19 giving rise to the characterization of the projects as "three on one" (3x1) CC
20 units.

21 **Q. What level of operating efficiency is anticipated for the Projects?**

22 A. In general, modern CC plants can be expected to achieve a fuel to electrical
23 energy conversion rate (heat rate) of less than 7,000 Btu/kWh, as opposed to

1 values in the 10,000 Btu/kWh range for conventional steam-electric
2 generating units. FPL anticipates that the converted units will achieve an
3 average base heat rate of approximately 6,580 Btu/kWh for Cape Canaveral
4 and 6,576 Btu/kWh for Riviera (based on an average ambient temperature of
5 75°F) over the lives of these projects. Each proposed 3x1 unit will therefore
6 produce the same amount of energy as a similarly sized conventional steam
7 plant using, on average, one third less fuel. The addition of this highly
8 efficient unit to the FPL system would improve the system heat rate by 1.07
9 percent, as discussed in FPL witness Rene Silva's testimony.

10 **Q. Are there other operational advantages to combined cycle technology?**

11 A. Yes. Another advantage of the multi-train CC arrangement is that it allows
12 for greater flexibility in matching unit output to system operating
13 characteristics over time.

14 **Q. Does FPL have experience in building combined cycle plants?**

15 A. Yes. FPL has extensive experience in building CC plants. FPL's first CC
16 plant (Putnam Units 1 & 2) went into service in 1976. As shown in Exhibit
17 CT-1, FPL has 8,961 MW (net summer) of CC capacity in service and the
18 addition of WCEC 1 & 2 are scheduled to be completed by June 2009 and
19 June 2010, respectively, adding 2,438 MW. WCEC 3 is currently pending
20 permitting and regulatory approval and is expected in service in 2011 adding
21 1,219 MW of CC capacity.

22 **Q. Please describe FPL's history of operating combined cycle plants.**

23 A. FPL has 8,961 MW (net summer) of CC equipment presently in-service which

1 utilize combustion turbines from various manufacturers. These include 30
2 General Electric (GE) 7FA turbines, 4 Mitsubishi/Westinghouse 501F
3 turbines and 4 Westinghouse 501B turbines.

4

5 In addition to its CC operating experience, FPL has extensive experience
6 operating simple-cycle CTs, which comprise the “front end” of the CC
7 technology. FPL has operated ten GE 7FA CTs in simple-cycle mode at its
8 Fort Myers and Martin plant sites in Florida. FPL also has been operating 48
9 smaller simple-cycle CT units for approximately 35 years.

10 **Q. Please describe FPL’s track record in building and operating combined**
11 **cycle units.**

12 A. In meeting its obligation to serve its customers, FPL has demonstrated its
13 ability to construct reliable and efficient plants. For example, in 1994 FPL
14 began commercial operation of two new CC units at FPL’s Martin plant and,
15 just two years later, FPL was awarded Power Magazine’s Power Plant of the
16 Year Award for world-class performance in operation and maintenance
17 (O&M) and availability for those units. In addition, other FPL projects have
18 been recognized on numerous occasions. The Turkey Point Expansion Project
19 (Turkey Point Unit 5) was recognized by Power Engineering magazine as the
20 “Best of the Year” gas-fired project in 2007. Both the Fort Myers
21 Repowering Project and Sanford Repowering Projects were recognized by
22 Power magazine as “Top Plants” of the year in 2003 and 2004, respectively.

1 To ensure ongoing best-in-class performance in today's highly competitive
2 electricity generating industry, FPL focuses on excellence in people,
3 technology, business and operating processes. FPL promotes a shift team
4 concept in its power plants that emphasizes empowerment, engagement and
5 accountability, with an understanding that each employee has the necessary
6 knowledge, skill and motivation to perform any required task. This
7 multifunctional, team-driven and well-trained workforce is the key to FPL's
8 ability to consistently meet and often exceed plant performance objectives.

9
10 With world-class operational skills from which to draw, FPL maximizes the
11 value of its existing and new assets by employing the best practices that
12 underlie its industry-leading positions. FPL's fossil-fueled fleet continues to
13 achieve an above average availability compared with the U.S. industry
14 average.

15 **Q. Please describe how FPL monitors the operational performance of its**
16 **power plants.**

17 A. FPL optimizes plant operations, gains process efficiencies and leverages the
18 deployment of technical skills through the use of technology as demand for
19 services increases. For example, the Company's Fleet Performance and
20 Diagnostics Center (FPDC) in Juno Beach, Florida, provides FPL with the
21 capability to monitor every fossil-fueled plant in its system. FPL can compare
22 the performance of like components on similar generating units, determine
23 how it can make improvements, and prevent problems before they occur.

1 Live video links can be established between the FPDC and plant control
2 rooms to immediately discuss, prevent, and solve problems. In 2001, FPL
3 was presented with an Industry Excellence Award from the Southeast Electric
4 Exchange for the FPDC. Both CCEC and RBEC will be connected to the
5 FPDC.

6 **Q. Please describe FPL's record in the conversion of older power generation**
7 **facilities to modern, state-of-the-art units.**

8 A. FPL has been recognized by the industry for its capabilities in modernizing
9 older generation units to state-of-the-art high-capacity, high-efficiency CC
10 units. FPL has a long-standing plant performance improvement program.
11 Since 1993, FPL has modernized older generation units at Lauderdale (1993),
12 Ft. Myers (2001), and Sanford (2003).

13 **Q. Please describe "conversion."**

14 A. A conversion involves the dismantlement of one or more existing generation
15 units, while leaving intact, for example, certain components such as the
16 cooling water intake and discharge infrastructure, and then the installation of a
17 new CC generation unit.

18 **Q. What types of fuel will the converted projects be capable of using?**

19 A. The projects will use natural gas as the primary fuel and will be capable of
20 using ultra low sulfur light oil as a back-up fuel. Due to their location on the
21 coast of Florida, both plants will be able to receive backup fuel from water
22 borne deliveries, which is a significant advantage particularly in emergency
23 situations compared to in-land plants. In her direct testimony, FPL witness

1 Heather Stubblefield explains how fuel will be supplied.

2

3

II. CAPE CANAVERAL CONVERSION PROJECT

4

5 **Q. Please describe the existing facilities at the Cape Canaveral site.**

6 A. The Cape Canaveral plant is located on 42 acres of flat, sandy area between
7 Cocoa and Titusville. The site is bounded on the east by the Indian River and
8 on the west by US Hwy 1. The Kennedy Space Center is across the river from
9 the plant. The plant currently consists of two nominal 400 MW conventional
10 dual-fuel fired steam boilers. Each of these conventional steam boilers can
11 burn #6 fuel oil and natural gas. Unit 1 entered service in 1965 and Unit 2
12 entered service in 1969. Cape Canaveral Plant has a summer rating of 792
13 MW and a winter rating of 796 MW. 2007 actual performance included an
14 average heat rate (Btu/kWh) of 10,592 Btu/kWh and a capacity factor of
15 31.3%.

16 **Q. Please describe the proposed Cape Canaveral conversion project in more
17 detail.**

18 A. As indicated previously, the generation facilities at Cape Canaveral will be
19 renamed the Cape Canaveral Energy Center or CCEC. Upon conversion,
20 CCEC will be a 3x1 CC plant consisting of three 250-MW Mitsubishi Power
21 Systems (MPS) G Class advanced CTs (or CTs with improved characteristics
22 should such technology become available), each with dry low-NO_x
23 combustors, and three HRSGs, which will use the waste heat energy from the

1 CTs to produce steam to be utilized in a new steam turbine generator. The
2 plant aesthetics will improve significantly. The stacks will be lowered from
3 approximately 400 feet to 150 feet. The location and the general arrangement
4 are shown for CCEC in Exhibit CT-2 and Exhibit CT-3.

5
6 Each CT unit will utilize inlet air evaporative cooling. Evaporative coolers
7 achieve cooling using water evaporation to remove heat from the inlet air.
8 This allows additional power to be produced during periods of high ambient
9 temperature (or on hot days).

10
11 The evaporative coolers normally would be utilized when the ambient air
12 temperature is greater than 60°F. Given an average annual temperature for the
13 FPL system of approximately 75°F, the output and heat rate benefits of
14 evaporative cooler operation are included in the base rating of 1,115 MW (net
15 summer) for CCEC and a base operation heat rate of 6,580 Btu/kWh.

16 Each HRSG will include duct burners. The duct burners can be fired during
17 peak demand periods to add an additional 104 MW of capacity to the unit at
18 an incremental heat rate of 8,770 Btu/kWh.

19
20 CCEC, with a summer generating capacity of 1,219 MW (net) from combined
21 base operations and duct burning capabilities, will be among the most efficient
22 electric generators in Florida. The unit will have an estimated equivalent
23 availability factor of approximately 97% and an estimated average forced

1 outage rate of approximately 1%. The expected operating characteristics are
2 shown in Exhibit CT-4.

3 **Q. Please describe the projected air emissions of the Cape Canaveral**
4 **conversion project.**

5 A. The conversion will result in cleaner electricity production. The use of natural
6 gas as a primary fuel and ultra-low sulfur light fuel oil as a backup fuel and
7 combustion controls will minimize air emissions from the unit and ensure
8 compliance with applicable emission limiting standards. Using these fuels
9 minimizes emissions of sulfur dioxide (SO₂), particulate matter, and other
10 fuel-bound contaminants. Combustion controls similarly minimize the
11 formation of nitrogen oxides (NO_x) and the combustor design will limit the
12 formation of carbon monoxide and volatile organic compounds. When firing
13 natural gas, NO_x emissions will be controlled using dry-low NO_x combustion
14 technology and selective catalytic reduction (SCR). Water injection and SCR
15 will be used to reduce NO_x emissions during operations when using ultra-low
16 sulfur light fuel oil as backup fuel. This design has been recognized by the
17 FDEP as the Best Available Control Technology for air emissions, and
18 minimizes such emissions while balancing economic, environmental, and
19 energy impacts. Taken together, the design of CCEC will incorporate features
20 that will make it among the most efficient and cleanest power plants in the
21 State of Florida.

1 **Q. What are the water requirements for the Cape Canaveral conversion**
2 **project, and how will they be met?**

3 A. There will be no additional water sources required as a result of this project.
4 Under its permit issued by the FDEP, water from the Indian River Lagoon
5 (Intracoastal Waterway) is and will continue to be used for once-through
6 cooling water. After conversion, the amount of cooling water required will
7 not exceed current permit limits. In addition, public water supply is used for
8 service and process water.

9
10 Certain Federal water environmental regulations are being reviewed by the
11 United States Environmental Protection Agency. While FPL does not expect
12 material changes to the requirements applicable to the Cape Canaveral
13 conversion, there is a possibility that changes do occur and that they will
14 affect the plans and costs for cooling water at the plant as well as at other FPL
15 generating facilities. However, changes in these requirements would affect
16 the plant irrespective of the proposed conversion. FPL will continue to
17 monitor the progress of these issues. In the event of any applicable changes,
18 of course, FPL would assess the most cost-effective means of complying with
19 the new requirements.

20 **Q. How will the Cape Canaveral conversion project be interconnected to**
21 **FPL's transmission network?**

22 A. As a result of the conversion, CCEC will continue to be interconnected to the
23 existing Cape Canaveral 230 kV system switchyard, which will remain in

1 place.

2 **Q. What is the current status of the certifications and permits required to**
3 **begin construction?**

4 A. FPL intends to pursue certification under the Power Plant Siting Act (PPSA).
5 We will first need to obtain approvals from Brevard County including
6 rezoning, site plan approval and conditional use authorization which we
7 anticipate will take 6 months. Then, FPL will file for regulatory approvals
8 through submittal of an air construction permit application, an application for
9 modification of the existing Industrial Wastewater Facility permit and for site
10 certification under the PPSA site certification process.

11 **Q. What is the proposed construction schedule for the Cape Canaveral**
12 **conversion project?**

13 A. A summary of estimated construction milestone dates is shown on Exhibit
14 CT-5. FPL will commence the conversion upon receipt of the necessary
15 regulatory approvals. We anticipate this will occur by ^{March}~~May~~ 2010. FPL
16 expects that the project will achieve commercial operation by June 2013. We
17 anticipate that demolition and construction will require approximately 36
18 months.

19 **Q. What does FPL estimate that the Cape Canaveral conversion project will**
20 **cost?**

21 A. A summary of estimated costs is shown on Exhibit CT-6. FPL estimates that
22 the total cost will be \$1,115 million. Principal components include the power
23 block of \$963 million, transmission, interconnection and integration of \$33

1 million, and Allowance for Funds Used During Construction (AFUDC) of
2 \$119 million.

3

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III. RIVIERA CONVERSION PROJECT

5

6 **Q. Please describe the existing facilities at the Riviera plant site.**

7 A. The Riviera plant is located on 21 acres, southwest of the Palm Beach Inlet
8 and Peanut Island, and across the Intracoastal Waterway from Palm Beach.
9 The plant currently consists of two nominal 280 MW conventional dual-fuel
10 fired steam boilers. Each of these conventional steam boilers can burn #6 fuel
11 oil and natural gas. One unit entered service in 1962 and the other unit
12 entered service in 1963. The Riviera plant has a summer rating of 565 MW
13 and a winter rating of 571 MW. 2007 actual performance included an average
14 heat rate (Btu/kWh) of 10,645 Btu/kWh and a capacity factor of 38.0%.

15 **Q. Please describe the proposed Riviera conversion project in more detail.**

16 A. As previously indicated, the generation facilities at Riviera will be renamed
17 the Riviera Beach Energy Center or RBEC. Upon conversion, RBEC will be
18 a 3x1 CC plant consisting of three 250-MW MPS G Class advanced CTs (or
19 CTs with improved characteristics should such technology become available),
20 each with dry low-NO_x combustors, and three HRSGs, which will use the
21 waste heat energy from the CTs to produce steam to be utilized in a new
22 steam turbine generator. The plant aesthetics will improve significantly. The
23 stacks will be lowered from 300 feet to 150 feet. The location and general

1 arrangement of RBEC are shown on Exhibit CT-7 and Exhibit CT-8.

2

3 Each CT unit will utilize inlet air evaporative cooling. Evaporative coolers
4 achieve cooling using water evaporation to remove heat from the inlet air.
5 This allows additional power to be produced during periods of high ambient
6 temperature (or on hot days).

7

8 The evaporative coolers normally would be utilized when the ambient air
9 temperature is greater than 60°F. Given an average annual temperature for the
10 FPL system of approximately 75°F, the output and heat rate benefits of
11 evaporative cooler operation are included in the base rating of 1,117 MW (net
12 summer) for RBEC and a base operation heat rate of 6,576 Btu/kWh.

13

14 Each HRSG will include duct burners. The duct burners can be fired during
15 peak demand periods to add an additional 90 MW of capacity to the unit at an
16 incremental heat rate of 8,770 Btu/kWh.

17

18 RBEC, with a summer generating capacity of 1,207 MW (net) from the base
19 operations and duct burning capabilities, will be among the most efficient
20 electric generators in Florida. The unit will have an estimated equivalent
21 availability factor of approximately 97% and an estimated average forced
22 outage rate of approximately 1%. The expected operating characteristics are
23 shown in Exhibit CT-9.

1 **Q. Please describe the potential air emissions of the Riviera conversion**
2 **project.**

3 A. The conversion will result in cleaner electricity production. The use of natural
4 gas as a primary fuel and ultra-low sulfur light fuel oil as a backup fuel and
5 combustion controls will minimize air emissions from the unit and ensure
6 compliance with applicable emission limiting standards. Using these fuels
7 minimizes emissions of SO₂, particulate matter, and other fuel-bound
8 contaminates. Combustion controls similarly minimize the formation of NO_x
9 and the combustor design will limit the formation of carbon monoxide and
10 volatile organic compounds. When firing natural gas, NO_x emissions will be
11 controlled using dry-low NO_x combustion technology and SCR. Water
12 injection and SCR will be used to reduce NO_x emissions during operations
13 when using ultra-low sulfur light fuel oil as backup fuel. These design
14 alternatives have been recognized by the FDEP as the Best Available Control
15 Technology for air emissions, and minimize such emissions while balancing
16 economic, environmental, and energy impacts. Taken together, the design of
17 the converted Riviera power plant will incorporate features that will make it
18 among the most efficient and cleanest power plants in the State of Florida.

19 **Q. What are the water requirements for the Riviera conversion project, and**
20 **how will they be met?**

21 A. There will be no additional water sources required as a result of this project.
22 Under its current permit issued by the FDEP, water from the Lake Worth
23 Lagoon (Intra-coastal waterway) is and will continue to be used for once-

1 through cooling water. After conversion, the amount of cooling water
2 required will not exceed current permit limits. In addition, the existing
3 municipal water supply will be used for industrial processing water, service
4 water, and potable water.

5
6 Certain federal water environmental regulations are being reviewed by the
7 United States Environmental Protection Agency. While FPL does not expect
8 material changes to the requirements applicable to the Riviera conversion,
9 there is a possibility that changes do occur and that they will affect the plans
10 and costs for cooling water at the plant as well as at other FPL generating
11 facilities. However, changes in these requirements would affect the plant
12 irrespective of the proposed conversion. FPL will continue to monitor the
13 progress of these issues. In the event of any applicable changes, of course,
14 FPL would assess the most cost-effective means of complying with the new
15 requirements.

16 **Q. How will the Riviera conversion project be interconnected to FPL's**
17 **transmission network?**

18 A. After the conversion, RBEC combustion turbines "A" and "B" will be
19 connected to the Riviera 138 kV system switchyard. RBEC combustion
20 turbine "C" and the steam turbine generator will be connected to the Riviera
21 230 kV system switchyard.

1 **Q. What is the current status of the certifications and permits required to**
2 **begin construction?**

3 A. FPL intends to pursue certification under the PPSA. We will first need to
4 obtain approvals from the City of Riviera Beach including site plan approval,
5 which we anticipate will take up to 6 months. No rezoning is required. Then,
6 FPL will file for regulatory approvals through submittal of an air construction
7 permit application, an application for modification of the existing Industrial
8 Wastewater Facility permit and for site certification under the PPSA site
9 certification process.

10 **Q. What is the proposed construction schedule for the Riviera conversion**
11 **project?**

12 A. A summary of estimated construction milestone dates is shown on Exhibit
13 CT-10. FPL will commence the conversion upon receipt of the necessary
14 regulatory approvals. We anticipate that this will occur by ~~May~~ ^{March} 2010. FPL
15 expects that the project will achieve commercial operation by June 2014. We
16 anticipate that demolition and construction will require approximately 45
17 months.

18 **Q. What does FPL estimate that the Riviera conversion project will cost?**

19 A. A summary of estimated costs is shown on Exhibit CT-11. FPL estimates that
20 the total cost will be \$1,276 million. Principal components include the power
21 block of \$997 million, transmission, interconnection and integration of \$132
22 million, and AFUDC of \$147 million.

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IV. CONSEQUENCES OF DELAY

Q. What are the likely consequences if the need determinations for the conversions are delayed?

A. FPL has set in-service dates of June 2013 for CCEC and June 2014 for RBEC. We anticipate commencing site work following the receipt of necessary approvals. We anticipate receiving a final order from the Commission by October 2008, local zoning and other approvals by March 2009 and anticipate commencing the PPSA process in early 2009. We anticipate completing all approvals by ~~May~~ ^{March} 2010. We believe this is a realistic timetable. If the approvals are delayed, the introduction of efficient and cost-effective capacity and energy would be delayed to the detriment of FPL's customers. Approval without delay would result in customers receiving cost-savings benefits and emission reductions described in the testimonies of FPL witnesses Silva, Sim and Kennard Kosky.

Q. Does this conclude your testimony?

A. Yes.

1 BY MR. ANDERSON:

2 Q Have you prepared a summary of your testimony?

3 A Yes, I have.

4 Q Please provide your summary to the Commission.

5 A Thank you. Good afternoon, Chairman Carter and
6 Commissioners. My name is Cindy Tindell. I'm Senior Director
7 of Development, meaning non-nuclear generation development, and
8 I have overall responsibility of the conversion of our plants
9 at Cape Canaveral and Riviera.

10 A positive determination by the Commission would
11 allow FPL to convert the Cape Canaveral and Riviera plants with
12 units dating back to the early to mid-1960s into highly
13 efficient, modern, lower emission next generation energy
14 centers using the latest combined cycle technology. I have
15 brought pictures showing an artist's rendering of the existing
16 conditions and the facilities after the conversion. You can
17 clearly see the reduced profiles made possible by the new
18 design.

19 These conversions will involve dismantling the
20 existing generation units while largely leaving intact the
21 cooling water intake and discharge infrastructure, then the
22 installation of new combined cycle generate systems. Scheduled
23 commercial operation dates for the converted plants are 2013
24 for Canaveral and 2014 for Riviera. These two conversions will
25 result in increased power generation at lower cost without

1 using any additional land, water sources, or transmission
2 rights-of-way. The converted plants will deliver lower cost,
3 more efficient, and cleaner energy to our customers. The
4 plants will use at least 33 percent less fuel for an equivalent
5 amount of energy production and will be capable of producing
6 nearly 80 percent more power.

7 By using natural gas as a primary fuel and best
8 available control technology for controlling air emissions, the
9 plants will minimize air emissions and will be among the
10 cleanest power plants in Florida. The converted plants will
11 continue to draw water from existing sources and will not
12 exceed existing permitted water limits.

13 Beyond cost savings and emissions reductions, the
14 conversions will improve the appearance of the communities in
15 they are located. At Canaveral the stacks will be lowered from
16 approximately 400 feet to 150 feet, while at Riviera the stacks
17 will be lowered from approximately 300 feet to 150 feet.

18 There is also an energy security component to these
19 projects. Due to their location on the coast, both plants will
20 be able to receive backup fuel from the water, which is a
21 significant advantage particularly in emergency situations
22 compared to inland plants.

23 FPL has a great deal of experience building and
24 operating combined cycle plants to achieve the best possible
25 efficiencies. Further, FPL has proven its ability to modernize

1 older plants. Since 2001, FPL has modernized older generation
2 units at Sanford and Fort Myers.

3 The cost estimates for the conversion projects are
4 based on reasonable assumptions and methodology, but do not
5 include the volatility that we have currently seen in recent
6 markets for key inputs. Actual project costs could be higher
7 or lower and will depend on the markets for major equipment and
8 construction labor as well as foreign currency exchange values
9 at the time of contracting the construction. However, those
10 factors will also affect the cost of alternative projects.
11 Therefore, we expect that the savings to our customers would be
12 preserved in addition to the other benefits of the conversions.

13 FPL is confident that it can perform the conversions
14 of the Cape Canaveral and Riviera plants and that the converted
15 plants will provide our customers with highly efficient and
16 reliable electric generation with lower air emissions for many
17 years to come.

18 This concludes my summary.

19 **CHAIRMAN CARTER:** Mr. Anderson, let's do this just
20 for the sake of convenience. Would it be possible to have
21 those boards brought up here so she could show the
22 Commissioners the before and after for each one of those? I
23 don't know about my colleagues, but I'm having trouble. And it
24 looks like -- I know its pretty, but I can't --

25 **MR. ANDERSON:** That's a great idea. Our colleagues

1 will pick them up and bring them closer to you so you can get a
2 good look at them. They're good pictures.

3 **CHAIRMAN CARTER:** Thank you. I'm trying to see what
4 is before and what is after and I'm in the trees.

5 Commissioners, can everyone see those? Just for the
6 sake of information, I wanted to just kind of see which is
7 which. Which are the before and which are the after.

8 You are recognized, Mr. Anderson.

9 **MR. ANDERSON:** Thank you very much. On the far
10 left-hand side is a conception of the Riviera plant with its
11 existing conditions. On this one you can tell which one it is.
12 This is the taller smokestacks with the red and white.

13 In contrast, the second to the left that we are
14 showing is Riviera Beach Energy Center, the conception of what
15 it would look like as the next generation clean energy facility
16 with the new units, which as you can see in this view no longer
17 contains the high stacks and the footprints and the like.

18 Moving on to the third from the left, we have the
19 Cape Canaveral plant in Cocoa, Florida in its existing
20 configuration. Again, it's of about the same vintage, so it
21 has much of the same visual characteristics and the same
22 more land intensive footprint.

23 And then, finally, the Cape Canaveral Energy Center
24 as the next generation clean energy facility showing the layout
25 of the new units on the site, again without the characteristic

1 higher stacks and with the more compressed footprint.

2 **CHAIRMAN CARTER:** Thank you.

3 Commissioners, this is not on the record. I just
4 wanted just for the sake of understanding and just kind of
5 looking at those charts to see what they were. But they are
6 entered into evidence or anything like that, just presented as
7 a visual overview.

8 And I think that where we are, Commissioners,
9 timewise I don't know if it would be appropriate for us to get
10 into a line of questioning, we may lose our thoughts and all.
11 I'm looking at the clock and it says 12:59. We are going to go
12 into lunch and also have staff an opportunity to go into lunch.

13 Commissioner Argenziano. Commissioner Skop, you had
14 a question, too? Okay. Commissioner Argenziano, you're first.

15 **COMMISSIONER ARGENZIANO:** Just one thing I would like
16 to express, because I need this at some point, and I guess in
17 trying to determine the projected needs for that area, I would
18 like to have what FPL used by the University of Florida. And I
19 would like to know what staff used as far as population
20 projections, and I think that is a critical component of what I
21 need in a packet to look at. So if I can let that be known
22 now, I would like to have that from both.

23 **MS. BROWN:** Mr. Chairman, if I might suggest we could
24 make that Late-filed Exhibit 1, which would be the University
25 of Florida report. And then in our recommendation we would

1 explain in more detail to you what staff evaluated.

2 **CHAIRMAN CARTER:** So that would be Number 99, is that
3 where we are now?

4 **MS. BROWN:** Yes, I think so. Yes, that's right.

5 **CHAIRMAN CARTER:** And these are the updated numbers
6 from the University of Florida.

7 Mr. Anderson.

8 **MR. ANDERSON:** We will provide that, sir.

9 **CHAIRMAN CARTER:** Something else. Commissioner
10 Argenziano.

11 **COMMISSIONER ARGENZIANO:** And just whatever staff
12 used, whether you used the University of Florida's data or
13 anything else.

14 **MS. BROWN:** We will provide that to you in our
15 post-hearing recommendation.

16 **COMMISSIONER ARGENZIANO:** Commissioner Argenziano,
17 any further information? Show that done without an objection.

18 (Late-filed Exhibit Number 99 marked for
19 identification.)

20 **CHAIRMAN CARTER:** Commissioner Skop, you're
21 recognized.

22 **COMMISSIONER SKOP:** Thank you, Mr. Chairman. And I
23 am happy to reserve the few limited questions I have until
24 after lunch, but to Commissioner Argenziano's point, I would
25 much prefer the UF provided data.

1 (Laughter.)

2 **CHAIRMAN CARTER:** I think this is an appropriate
3 point for all of us to have lunch. So we are on recess until
4 2:30.

5 (Lunch recess.)

6 (Transcript continues in sequence with Volume 2.)

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STATE OF FLORIDA)

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COUNTY OF LEON)

CERTIFICATE OF REPORTER

I, JANE FAUROT, RPR, Chief, Hearing Reporter Services Section, FPSC Division of Commission Clerk, do hereby certify that the foregoing proceeding was heard at the time and place herein stated.

IT IS FURTHER CERTIFIED that I stenographically reported the said proceedings; that the same has been transcribed under my direct supervision; and that this transcript constitutes a true transcription of my notes of said proceedings.

I FURTHER CERTIFY that I am not a relative, employee, attorney or counsel of any of the parties, nor am I a relative or employee of any of the parties' attorney or counsel connected with the action, nor am I financially interested in the action.

DATED THIS 27th day of June, 2008.



JANE FAUROT, RPR
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