

State of Florida



## Public Service Commission

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TALLAHASSEE, FLORIDA 32399-0850

**-M-E-M-O-R-A-N-D-U-M-**

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**DATE:** August 7, 2008

**TO:** Office of Commission Clerk (Cole)

**FROM:** Division of Economic Regulation (S. Brown, Bulecza-Banks, Garl, Hewitt, Lester, Matlock, Maurey, McNulty, Springer, Stallcup, Webb, Wu)  
Office of the General Counsel (M. Brown, Klancke)

**RE:** Docket No. 080203-EI – Petition to determine need for West County Energy Center Unit 3 electrical power plant, by Florida Power & Light Company.

Docket No. 080245-EI – Petition for determination of need for conversion of Riviera Plant in Palm Beach County, by Florida Power & Light Company.

Docket No. 080246-EI – Petition for determination of need for conversion of Cape Canaveral Plant in Brevard County, by Florida Power & Light Company.

**AGENDA:** 08/19/08 – Posthearing Recommendation – Participation Limited to Commissioners and Staff

**COMMISSIONERS ASSIGNED:** All Commissioners

**PREHEARING OFFICER:** Edgar

**CRITICAL DATES:** 135 day deadline per statute – August 21, 2008

**SPECIAL INSTRUCTIONS:** The Commission should address Issues 9 and 17 after addressing Issue 1

**FILE NAME AND LOCATION:** S:\PSC\ECR\WP\080203.RCM.DOC

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### Case Background

On April 8, 2008, Florida Power & Light Company (FPL) filed a petition for determination of need for the proposed West County Energy Center Unit 3 (WCEC 3), pursuant to Section 403.519, Florida Statutes (F.S.), and Rule 25-22.080, Florida Administrative Code

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(F.A.C.). WCEC 3 will be a combined cycle unit with a summer capacity rating of 1,219 megawatts (MW), built on an existing generating site in Palm Beach County, Florida, with an in-service date of June 1, 2011.

On April 30, 2008, FPL filed two additional petitions for determination of need at its existing Cape Canaveral and Riviera plants. Both petitions involve converting two oil and natural gas fueled steam electric generating units built in the 1960s into efficient combined cycle power plants. The Cape Canaveral Conversion will convert two operating 400 MW dual-fired steam generating units into a combined cycle power plant with a summer capacity of 1,219 MW. The proposed commercial operation date of the Cape Canaveral Conversion is June 1, 2013. The Riviera Conversion will convert two operating 280 MW dual-fired steam generating units into a combined cycle power plant with a summer capacity of 1,207 MW. The proposed commercial operation date of the Riviera Conversion is June 1, 2014.

Pursuant to Section 403.519(3), F.S., the Commission is the sole forum for the determination of need for an electrical power plant. In making its determination, the Commission must take into consideration the need for electric system reliability and integrity, the need for adequate electricity at a reasonable cost, the need for fuel diversity and supply reliability, whether the proposed plant is the most cost-effective alternative available, and whether renewable energy sources and technologies, as well as conservation measures, are utilized to the extent reasonably available.

#### Public Testimony

In addition to the prefiled testimony submitted by FPL, the Commission received mailed comments and heard live testimony from two public witnesses at the formal administrative hearing in Tallahassee on June 23, 2008. Below is a list of topics of interest voiced by the public and a reference to where they will be addressed within staff's recommendation:

System Reliability and Integrity - Issues 2, 10, and 18

Reasonable Costs for Electricity – Issues 3, 11, and 19

Renewables/Conservation/Demand-Side Management – Issues 5, 13, and 21

Cost-Effectiveness – Issues 6, 14, and 22

Other areas of interest that were discussed during the public testimony phase of the hearing focused on subjects beyond the scope of this proceeding established under Section 403.519, F.S., or the Commission's jurisdiction under its authorizing statutes. Those interests are listed below:

Environmental Concerns: Citizens voiced concerns about water supply becoming contaminated and unavailable.<sup>1</sup>

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<sup>1</sup> Public Witnesses Waite and Larson.

Health Concerns: Concerns were raised about overall health conditions from drinking contaminated water.<sup>2</sup>

Safety Concerns: Safety concerns regarding plant being located near a blasting area.<sup>2</sup>

Section 403.519, F.S., authorizes the Commission to examine FPL's projected costs for environmental controls necessary to meet current state and federal environmental requirements (See Issues 6, 14, and 22). The public testimony regarding the environmental concerns and health issues falls under the Department of Environmental Protection's (DEP) jurisdiction.

While safety is not a specific issue in a need determination proceeding conducted under Section 403.519, F.S., the Commission does have jurisdiction to prescribe and enforce safety standards for transmission and distribution facilities of public utilities pursuant to Section 366.04(6), F.S. The Commission also has jurisdiction over natural gas pipeline safety pursuant to Sections 368.01-366.61, F.S. The Commission has implemented this jurisdiction in Chapter 25-12, F.A.C., "Safety of Gas Transportation by Pipeline." At the hearing for these dockets, in response to public testimony and questions by the Commissioners, FPL witness Gnecco testified that the project and the related natural gas lateral met safety standards. (TR 258-259, 266-268)

Staff believes the Commission's ability to address some of the issues raised in public testimony is limited by the scope of Section 403.519, F.S., and other statutes which establish the Commission's jurisdiction. However, these concerns may be relevant in certification proceedings before DEP, the Division of Administrative Hearings, and the Governor and Cabinet, sitting as the Siting Board.

The Commission has jurisdiction over the subject matter of this proceeding pursuant to Sections 366.04(2)(c) and (5), 403.507(4), and 403.519, F.S.

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<sup>2</sup> Public Witnesses Waite and Larson.

### Executive Summary

FPL has demonstrated a reliability need for additional resource capacity in 2013. Typically, when a company seeks to satisfy a need for additional resource capacity using natural gas facilities, a petition for need determination would be submitted to the Commission approximately 3 years before the facility's in-service date. The company decided, however, that unique economic opportunities and site-specific circumstances made it more cost effective to build WCEC 3 for operation in 2011 and perform the conversions at Cape Canaveral and Riviera by 2013 and 2014. FPL contends that it will not be able to perform the conversions of Cape Canaveral and Riviera without approval of the proposed WCEC 3. As such, for the purpose of this recommendation, the three projects will be discussed as a package in several of the issues in the recommendation. FPL chose gas-fired combined cycle units as its resource option to meet its capacity needs. This decision was made primarily because coal and nuclear generation have longer construction times and would not be able to provide the additional capacity in the time needed. This approach will maintain FPL's reserve margin above 20 percent throughout the period.

FPL issued a Request for Proposals (RFP) for the WCEC 3 unit consistent with the requirements of Rule 25-22.082(18), F.A.C., (Bid Rule) on December 13, 2007. The RFP process was conducted in accordance with guidelines provided in the Bid Rule. FPL's analysis of the proposals revealed that WCEC 3 was more than \$600 million cumulative present value revenue requirements (CPVRR) less costly than the next best alternative. FPL requested an exemption from the Bid Rule for the conversion petitions. FPL contends that the same RFP results that applied in WCEC 3 in isolation would apply to the conversions.

Staff recommends that the Commission approve the need for the new WCEC 3, the conversions of the Cape Canaveral and Riviera plants, and the exemption from the Bid Rule for the conversions. Waiver of the Bid Rule does not remove a utility's responsibility to prudently manage costs. Costs in addition to those identified in these need determination proceedings should not be recoverable unless FPL can demonstrate that such costs were prudently incurred and due to extraordinary circumstances.

### Need for Power

FPL's forecasted reliability need already considers and accounts for all identified cost-effective demand-side management (DSM) and renewable generation. The amount of DSM and renewable generation is the same amount that was approved as reasonable by the Commission in the recent Turkey Point 6 and 7 need determination.<sup>3</sup> During the hearing, FPL demonstrated that expenditure of equivalent funds on renewable solar generation could not be expected to mitigate the need for WCEC 3 and the conversions.

FPL has demonstrated that based on maintaining a 20 percent reserve margin planning criterion, it will have a reliability need for additional capacity in the summer of 2013. FPL's base case plan would add new combined cycle generation in the years 2013, 2014, and 2016,

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<sup>3</sup> Order No. PSC-08-0237-FOF-EI, issued April 11, 2008, in Docket No. 070650-EI, In re: Petition to determine need for Turkey Point Nuclear Units 6 and 7 electrical power plants, by Florida Power & Light Company.

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with no conversions, to maintain a 20% reserve margin. If a hypothetical 15% reserve margin was assumed, FPL's initial reliability need could be delayed until 2014.

If granted approval to build WCEC 3 in 2011, FPL can remove the Cape Canaveral and Riviera plants from operation in 2010. FPL can then convert the plants by removing the steam electric generating units, which have been in operation since the 1960s, replacing them with high-efficiency combined cycle power plants, and returning them to operation in 2013 and 2014. The table below summarizes the projected reserve margins for each of the scenarios:

Estimated Impact on Summer Reserve Margin (%)				
Year	No Additions	Base Case	WCEC 3 in 2011 w/o Conversions	WCEC 3 in 2011 with Conversions following
2011	22.3	22.3	27.9	21.7
2012	20.6	20.6	26.0	20.0
2013	18.7	24.0	24.0	23.4
2014	13.6	23.8	23.8	23.2
2015	11.1	21.1	21.1	20.5
2016	3.4	22.9	22.9	22.3
2017	1.1	20.1	20.1	19.5

### Fuel Diversity

#### WCEC 3 without Conversions:

Building additional coal or nuclear generation by 2013 is not feasible due to construction and permitting lead times required for these types of generation alternatives. FPL's current generation fuel mix is primarily natural gas; therefore, adding WCEC 3 in 2011 will not change FPL's generation fuel mix as a percentage of net energy for load. However, the addition of WCEC 3 will improve FPL's overall fuel efficiency by 1.4%. The result is a reduction of total oil and gas consumption by approximately 29 million Million British Thermal Units (MMBtu) through 2017 compared to FPL's base case.

#### WCEC 3 with Conversions:

The conversion of the Cape Canaveral and Riviera units will not change FPL's generation fuel mix as a percentage of net energy for load. The conversions, however, will improve FPL's overall fuel efficiency by an estimated 1.1% after the WCEC 3 unit comes on-line in 2011. Compared to FPL's base plan, adding WCEC 3 in 2011 followed by the conversion projects is projected to reduce total oil and gas consumption by approximately 87.8 million MMBtu, compared to the base plan, through 2017.

Cost Effectiveness

WCEC 3 without Conversions:

The total estimated installed cost for the proposed WCEC 3 is \$709/kw. This estimated cost is less than a greenfield combined-cycle generating unit whose cost is estimated at \$1,076/kw. The differences in the costs mentioned above are because the proposed WCEC 3 would be the third unit at the West County site. Because this site has existing construction underway for the West County 1 and 2 units, adding WCEC 3 will allow for the economic continuation of work currently being performed. The updated 2008 fuel and environmental cost estimates revealed that constructing WCEC 3 without the conversions would result in savings of approximately \$735 million in present value savings by the year 2040 compared to the base case. If the decision to build new generation is delayed until 2013, a negative result would be that the site may not be viable for expansion due to the higher costs and availability of cooling water and higher costs due to the re-mobilization of construction workers.

WCEC 3 with Conversions:

The total estimated installed costs for the proposed Cape Canaveral and Riviera conversions are \$914/kw and \$1,057/kw, compared to the proposed WCEC 3 which has an installed cost of \$709/kw. The plan that includes WCEC 3 with the conversions would result in additional savings compared to a plan that included only WCEC 3 in 2011. The conversions would result in savings of approximately \$457 million in present value savings. Thus, the total savings of the plan that includes WCEC 3 and the conversions is approximately \$1.2 billion in present value savings by the year 2040. In addition, an added advantage of WCEC 3 with the conversions would result in a reduction of approximately 44.2 thousand tons of SO<sub>2</sub>, 31.1 thousand tons of NO<sub>x</sub> and 8 million tons of CO<sub>2</sub> and 87.8 million MMBtu in oil and natural gas.

Exemption from Rule 25-22.082, F.A.C., (Bid Rule) for the Conversion projects

Rule 25-22.082(18), F.A.C., provides:

Upon a showing by a public utility and a finding by the Commission that a proposal not in compliance with this rule's provisions will likely result in a lower cost supply of electricity to the utility's general body of ratepayers, increase in the reliable supply of electricity to the utility's general body of ratepayers, or otherwise will serve the public welfare, the Commission shall exempt the utility from compliance with the rule or any part of it for which such justification is found.

FPL should be granted an exemption from Rule 25-22.082, F.A.C., for the proposed conversions. On December 13, 2007, FPL issued an RFP for WCEC 3 which included specific content required by the Bid Rule. FPL's analysis of the proposals revealed that the proposed WCEC 3 was more than \$600 million CPVRR less costly than the next best alternative proposed by RFP responses. FPL also used an independent evaluator to conduct an economic evaluation and review of FPL's RFP evaluation process. The independent evaluator agreed with FPL. As discussed previously, FPL's plan with respect to the conversions is more cost-effective than the

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plan that was compared to the RFP responses. This shows that FPL has demonstrated that the conversion projects will likely result in lower cost supply of electricity and, thus, should be granted an exemption from Rule 25-22.082(18), F.A.C.

As mentioned previously, FPL followed the Bid Rule for WCEC 3 by issuing an RFP and evaluating the responses. Rule 25-22.082(15), F.A.C., states:

If the public utility selects a self build option, costs in addition to those identified in the need determination proceeding shall not be recoverable unless the utility can demonstrate that such costs were prudently incurred and due to extraordinary circumstances.

FPL has agreed to file cost information for all three proposed plans. For each petition of need approved, FPL should be required to report the budgeted and actual costs compared to the estimated total in-service cost of the proposed WCEC 3, Cape Canaveral, and Riviera units. These costs will be reported on an annual basis to the Director of Economic Regulation. If FPL decides to use an alternative combustion turbine design from the one presented in these proceedings, FPL should report to the Commission the comparative cost advantage of the alternate design. For all three projects, costs in addition to those identified in the need determination proceedings should not be recoverable unless FPL demonstrates that they were prudently incurred and due to extraordinary circumstances.

### Conclusion

Staff believes that FPL has demonstrated that its plan to build WCEC 3 and convert its existing Cape Canaveral and Riviera plants meet all of the requirements of Section 403.519, F.S. The new and converted units would provide nearly 2,300 MW of capacity needed through 2017 and ensure a 20 percent reserve margin. The assessments of various combinations of timings and generating resources used reasonable assumptions in demonstrating the proposed projects would provide adequate electricity at reasonable cost and, in fact, were the most cost-effective alternative. FPL demonstrated that use of all identified cost-effective conservation and reasonably available renewable generation would not provide the capacity or demand reduction necessary to mitigate the need for these projects.

Staff, therefore, recommends approval of the three need determinations and exemption from the Bid Rule for the two conversions. In addition, staff recommends that FPL annually report to the Director of Economic Regulation the budgeted and actual costs compared to the estimated total in-service cost of the proposed WCEC 3, Cape Canaveral Conversion and Riviera Conversion. Costs in addition to those identified in this need determination proceeding should not be recoverable absent FPL's demonstration that such costs were prudently incurred and due to extraordinary circumstances.

### **Discussion of Issues**

**Issue 1:** Has FPL met the requirements of Rule 25-22.082, Florida Administrative Code, with respect to the selection of building WCEC 3?

**Recommendation:** Yes. FPL issued a RFP consistent with the requirements of Rule 25-22.082, F.A.C., on December 13, 2007. The RFP process was conducted in accordance with the guidelines provided by Rule 25-22.082, F.A.C. Pursuant to Rule 25-22.082(15), F.A.C., costs in addition to those identified in this need determination proceeding for WCEC 3 would not be recoverable unless FPL can demonstrate that such costs were prudently incurred and due to extraordinary circumstances. (S. Brown, Garl)

**FPL's Position:** Yes. FPL's RFP issued on December 13, 2007, was consistent with the requirements of Rule 25-22.082. FPL's analysis shows that WCEC 3 in 2011 is over \$600 million CPVRR less costly than the best proposal. An independent evaluator confirmed the cost advantage of WCEC 3 over the competing proposals.

**Staff Analysis:** FPL states that its RFP was consistent with the requirements of Rule 25-22.082, F.A.C. (Bid Rule), and that specific content required by the Bid Rule was included in the RFP. In addition, FPL asserts that its analysis of the proposals revealed that installing WCEC 3 in 2011 was at a minimum, more than \$600 million CPVRR less costly than the next best alternative. (FPL BR 4)

FPL compared the proposed WCEC 3 in 2011 resource plan to five other proposed resource plans that were received in response to FPL's RFP. (TR 70) FPL's analysis of the proposals showed that WCEC 3 in 2011 was more than \$600 million CPVRR less costly than the next best alternative proposed in the RFP. (TR 70, 493-494, EXH 2 Bates Stamp 00000261-000268) An independent evaluator reviewed FPL's solicitation process and conducted his own evaluation of FPL's Next Planned Generating Unit and the proposals that were submitted in response to the RFP. (TR 200) As a result of his evaluation, the evaluator agreed with the results of the RFP. (TR 77) The RFP evaluation was done using fuel and economic forecasts developed in 2007. FPL updated its fuel and economic forecast assumptions on March 13, 2008. (EXH 2 Bates Stamp 00000476) Since all of the proposals were based on either natural gas or oil generation alternatives, the change in fuel and economic assumptions would not affect the relative rankings of proposals compared to constructing WCEC 3 in 2011. (TR 209-210)

Because FPL issued an RFP for the WCEC 3 facility, FPL must also comply with Rule 25-22.082(15), F.A.C. As such, costs in addition to those identified in this need determination proceeding for WCEC 3 would not be recoverable unless FPL can demonstrate that such costs were prudently incurred and due to extraordinary circumstances. The treatment of costs in addition to those identified in this need determination proceeding for the Riviera and Cape Canaveral conversions are discussed in Issues 9 and 17.

In conclusion, staff believes that FPL has met the requirements of Rule 25-22.082, F.A.C., and it has determined that WCEC 3 in 2011 is more than \$600 million CPVRR less costly than any of the proposals received through the RFP.



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**Issue 2:** Is there a need for WCEC 3, taking into account the need for electric system reliability and integrity, as this criterion is used in Section 403.519, Florida Statutes?

**Recommendation:** Yes. FPL has demonstrated a reliability need in the summer of 2013 based on maintaining a 20 percent reserve margin planning criterion. The construction of WCEC 3 in 2011 will provide adequate generating capacity to allow for the conversions of the existing Cape Canaveral and Riviera generating units and will not adversely impact system reliability. (S. Brown, Garl, Hewitt)

**FPL's Position:** Yes. From 2011 through 2017, FPL will need to add 4,844 MW of new generating capacity, after accounting for all identified cost-effective DSM and available renewable resources. WCEC 3 will provide 1,219 MW of highly efficient capacity to help satisfy this need.

**Staff Analysis:** FPL contends that reliable forecasts show that, although growing at a slower rate, Florida's population is still on the rise. (FPL BR 4) FPL asserts that the total growth in customers is the primary driver of its projected peak demand growth. (FPL BR 4, TR 323, 342)

Staff has reviewed FPL's forecast assumptions, regression models, and the projected system peak demands, and believes that this information is appropriate for use in this docket. The forecast assumptions were drawn from independent sources, which the Commission has relied upon in prior cases. The regression models used to calculate the projected peak demands conform to accepted economic and statistical practices. (TR 322-323) Although slower customer growth could reduce actual peak demand from that forecasted, staff believes that the projected peak demands produced by the models used by FPL appear to be a reasonable extension of historical trends. Rosemary Morley's testimony (TR 354-355) indicated that FPL's forecasts accounted for the recent trend of a decreasing population growth rate.

FPL uses the University of Florida's Bureau of Economic and Business Research (BEBR) to develop its population projections. (TR 321) BEBR's population projections are normally updated every year, the most recent being in November 2007. Those projections show continued long-term growth in Florida, specifically, a 1.7 percent annual growth rate beginning in the 2008 through 2017 period. A sensitivity analysis using updated population projections from the University of Florida's BEBR dated February 2008 was performed by FPL. That analysis revealed that there would still be significant cost savings and other benefits realized with lower customer growth. (TR 171, 538-539) Although slower customer growth could reduce actual peak demand from that forecasted, staff believes that the projected peak demands produced by the models used by FPL appear to be a reasonable extension of historical trends.

FPL's base case plan would add new combined-cycle generation in the years 2013, 2014, and 2016 in order to maintain a 20 percent reserve margin. (EXH 39) If a 15 percent reserve margin planning criterion was assumed, FPL's initial reliability need could be delayed until 2014. (EXH 2 Bates Stamp 00000303) From 2011 through 2017, FPL has a need of 4,844 MW. WCEC 3 will supply approximately 1,219 MW of this need.

Under different circumstances, FPL would not file a petition for a determination of need for WCEC 3 until sometime in 2010. The decision to build WCEC in 2011, which is in advance

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of the identified reliability need, is driven by unique economic opportunities and site-specific circumstances. (TR 58) This will be discussed in more detail in Issue 6. For example, the economic analytical results for WCEC 3 in 2011 show that costs of equipment, materials and labor are significantly lower than they would be if WCEC 3 were to be installed later or at an alternative site. (TR 71) After the addition of WCEC 3 in 2011, FPL's reserve margin will be approximately 27.9 percent. FPL wishes to construct WCEC 3 in 2011 because it believes doing so will provide adequate generating capacity to allow for the removal from service of the existing Cape Canaveral and Riviera generating units in order to pursue the conversion of these facilities and not adversely impact system reliability. (FPL BR 11) When the Canaveral and Riviera units are removed from service, FPL's reserve margin would drop to approximately 21.7 percent in the year 2011.

The table below summarizes the projected reserve margin for the scenarios mentioned previously:

Estimated Impact on Summer Reserve Margin (%)				
Year	No Additions	Base Case	WCEC 3 in 2011 without Conversions	WCEC 3 in 2011 with Conversions following
2011	22.3	22.3	27.9	21.7
2012	20.6	20.6	26.0	20.0
2013	18.7	24.0	24.0	23.4
2014	13.6	23.8	23.8	23.2
2015	11.1	21.1	21.1	20.5
2016	3.4	22.9	22.9	22.3
2017	1.1	20.1	20.1	19.5

FPL's need for additional capacity to meet rising electricity demands cannot be satisfied with additional purchased power from renewable generation. Additional DSM programs and renewables are not capable of deferring the need for the additional capacity. (TR 472) Renewable generation opportunities as well as DSM programs will be addressed in Issue 5.

In conclusion, the evidence shows that FPL will have a need for approximately 4,844 MW of additional capacity beginning in the 2011 through 2017 period. (TR 69, 74, 104) The proposed WCEC 3 will provide 1,219 MW of capacity towards fulfilling this need. Under different circumstances, FPL would not file a petition for a determination of need until sometime in 2010. The decision to build WCEC in 2011 is driven by unique economic opportunities and site-specific circumstances. A sensitivity analysis using updated population projections from the University of Florida's BEBR, dated February 2008 was performed by FPL. That analysis revealed that there would still be significant cost savings and other benefits realized with lower customer growth.

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**Issue 3:** Is there a need for WCEC 3 taking into account the need for adequate electricity at a reasonable cost, as this criterion is used in Section 403.519, Florida Statutes?

**Recommendation:** Yes. FPL has adequately demonstrated a need for WCEC 3 in 2011 and the conversions of the Riviera and Cape Canaveral plants. The cost estimates presented by all three projects consisting of capital costs, fuel costs, emission costs and water are reasonable. (S. Brown, Garl, Lester, Springer, Wu)

**FPL's Position:** Yes. WCEC 3 in 2011 will take advantage of construction cost efficiencies and provide more cost certainty than building a unit at a greenfield site at a later time. Moreover, adding WCEC 3 in 2011 will save customers \$137 to \$735 million CPVRR compared to the other available self-build alternatives.

**Staff Analysis:** The total installed cost estimate for WCEC 3 is \$864.7 million. (TR 251, 269) FPL believes that the costs of WCEC 3 are reasonable and represent the most cost-effective option available. (FPL BR 6) Compared to the other self-build alternatives, FPL's original analysis revealed that the resource plan that included WCEC 3 in 2011 will save customers from \$137 million to \$460 million CPVRR. (TR 536) A later analysis was conducted using updated fuel and environmental cost forecasts. The results of that analysis depict savings increasing from \$460 million CPVRR to \$735 million CPVRR by the year 2040. (TR 536) The conversions will add approximately \$457 million in additional savings for FPL's ratepayers. (TR 138, 526, EXH 2 Bates Stamp 00000482)

Staff believes FPL's fuel price forecasts are reasonable for purposes of evaluating its expansion and conversion plans. Although FPL did not compare its fuel forecasts to published forecasts, FPL represents that its forecasts are based on recognized, independent sources of forecast information. (EXH 2 Bates Stamp 00000360-361, 00000581) Staff notes that, for natural gas, FPL used a real escalation rate – 1.14 percent for WCEC Unit 3 and 2.0 percent for the updated conversion forecasts – based on the average annual escalation from 2020 to 2030 from EIA's Annual Energy Outlook February 2007 price forecast. (EXH 2 Bates Stamp 00000361, 00000580) FPL states the escalation rates are "industry-accepted." (EX 2 Bates Stamp 00000360) FPL further states that the "fuel price forecasts reflect the projected supply, demand, and price for fuel oil, natural gas, coal, and petroleum coke, as well as the transportation of these fuels to the existing and proposed sites." (TR 371-372, 382) According to witness Stubblefield, FPL is confident that there is enough natural gas to supply WCEC 3 and the conversion projects during their lifetimes. (TR 392-393)

#### Financial Assumptions

FPL's analysis for WCEC 3 assumes an overall cost of capital of 8.40 percent with the federal manufacturer's tax credit and 8.30 percent without the credit. (EXH 2 Bates Stamp 00000322) A different discount rate was used for generation-related capital costs because the application of the federal production tax credit for new generation units results in a different effective tax rate for generation-related capital costs compared to other capital costs. (EXH 2 Bates Stamp 00000008) These rates of return are based on a capital structure consisting of 55.8 percent equity at a cost rate of 11.75 percent and 44.2 percent debt at a cost rate of 6.43 percent. (EXH 2 Bates Stamp 00000008) FPL applied the then current Allowance for Funds Used

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During Construction (AFUDC) rate of 7.42 percent. FPL used several of the same financial and economic assumptions for WCEC 3, such as the 2.50 percent escalation rate and the capital structure, that were used in the Company's need determination filings for capacity uprates at its four existing nuclear units approved in Order No. PSC-08-0021-FOF-EI<sup>4</sup> and the Turkey Point Units 6 and 7 approved in Order No. PSC-08-0237-FOF-EI.<sup>5</sup> (TR 466, 518) There was no evidence presented in the record that disputes the reasonableness of FPL's financial assumptions. Based on this review, staff recommends that the financial assumptions used for this evaluation are reasonable.

### Generation Cost Estimates

The estimated total installed cost for WCEC 3 is \$709/kilowatt. (EXH 2 Bates Stamp 00000299, 00000448) This cost estimate includes the benefits associated with utilizing an existing site and infrastructure. FPL has demonstrated that the cost of WCEC 3 is less than the cost of a new greenfield combined-cycle generating unit, which is estimated to be \$1,076/kW. (EXH 2 Bates Stamp 00000448) West County Units 1 & 2 are currently under construction and FPL would be able to use those construction crews on the WCEC 3 project. (TR 252, 474) If the decision to build any new generation is delayed until 2013, the WCEC site may not be feasible for expansion due to cooling water costs and availability, as well as increased costs due to the need to re-mobilize construction crews. (TR 252)

The total estimated installed cost for the conversion of the Cape Canaveral and Riviera plants are \$914/kw and \$1,057/kw respectfully. (EXH 2 Bates Stamp 00000223). These costs estimates are comparable to the new greenfield estimate mentioned above but do not account for the retirement of the existing units.

### Fuel Forecasts

The natural gas and oil price forecasts through 2020 are based on the forward curve for commodity prices and projections from PIRA Energy Group. After 2020, the prices are escalated based on real price changes based on the Energy Information Administration's (EIA) long-term price forecast. Transportation costs are added to the commodity prices to obtain delivered prices. (TR 369-370, 380) For WCEC 3, FPL's assumed gas transportation cost for evaluating the RFP responses is \$1.165 per MMBtu. (TR 375) For the conversion projects, FPL's assumed transportation cost for evaluation purposes is \$1.40 per MMBtu. (TR 385) For solid fuel, FPL used commodity price forecasts from JD Energy and added in marine and rail transportation costs and terminal charges. All fuel prices are converted to nominal dollars using the 2.5 percent annual escalation rate. (TR 369-370, 380-381)

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<sup>4</sup> Order No. PSC-08-0021-FOF-EI, issued January 7, 2008, in Docket No. 070602-EI, In re: Petition for determination of need for expansion of Turkey Point and St. Lucie nuclear power plants, for exemption from Bid Rule 25-22.082, F.A.C., and for cost recovery through the Commission's Nuclear Power Plant Cost Recovery Rule, Rule 25-6.0423, F.A.C.

<sup>5</sup> Order No. PSC-08-0237-FOF-EI, issued April 11, 2008, in Docket No. 070650-EI, In re: Petition to determine need for Turkey Point Nuclear Units 6 and 7 electrical power plant, by Florida Power & Light Company.

### Environmental Costs

In preparing its economic analysis of WCEC Unit 3, FPL included a reasonable level of environmental compliance costs. (TR 415, 425, 430) The allowance costs used by FPL for WCEC Unit 3 were based on ICF International's report titled "U.S. Emission & Fuel Market Outlook, 2006 edition" (ICF's 2006 Report), as well as its updated version, "U.S. Emission & Fuel Market Outlook, 2007 edition" (ICF's 2007 Report). In particular, the mid-range ICF compliance cost forecast, namely ENV II, was used. (Kosky TR 423-424) This forecast is the same as what the Commission recently reviewed and approved in Order No. PSC-08-0237-FOF-EI, for FPL's Turkey Point Units 6 & 7. The allocations of SO<sub>2</sub>, NO<sub>x</sub>, and H<sub>g</sub> allowances were based on the CAIR and CAMR rules developed by the FDEP. (TR 424) For CO<sub>2</sub>, it was assumed that allowances would be purchased under a cap-and-trade system similar to an auction. (TR 424) Apart from the consideration of air emission costs, FPL has also included all equipment and associated operating costs required to comply with current environmental laws and regulations in the economic analysis of the WCEC 3 resource plan. (EXH 2 Bates Stamp 00000367)

The same methodology mentioned in the previous paragraph regarding allowance costs was used to evaluate the economic benefit of its conversion plans. FPL used its medium-level natural gas cost forecast and its medium-level CO<sub>2</sub> compliance cost forecast (ENV II). (Sim TR 527) FPL conducted a sensitivity economic analysis that used both the original and the updated high CO<sub>2</sub> compliance cost forecasts provided in ICF's 2006 Report and ICF's 2007 Report. (TR 527) Staff believes that FPL has included a reasonable level of environmental compliance costs in its economic analysis of WCEC 3 and the conversion options of the Cape Canaveral and Riviera plants.

### Water Costs

Reclaimed water will be the primary source of cooling and process water for WCEC Unit 3. (EXH 2 Bates Stamp 00000368) FPL's witness Gnecco testified that the East Coast Regional Water Reclamation Facility of the Palm Beach County Water Utilities will provide reclaimed water to the WCEC site; and that facility is a very reliable source. (EXH 2, Bates Stamp 00000368) The capital and O&M cost associated with construction, operation, and maintenance of the treatment facility and pipeline will be included in the County's monthly water charge to FPL. Costs associated with the monthly water fee have been included in the economic analysis of this filing. (EXH 2 Bates Stamp 00000368)

The conversion of the Cape Canaveral and Riviera plants will not use additional water sources or exceed existing water permit limits. (TR 286) Water from the Indian River Lagoon (Intracostal Waterway) is and will continue to be used for once-through cooling water for the Cape Canaveral conversion. After the conversion, the amount of cooling water required will not exceed current permit limits. (TR 286) In the Riviera conversion, water from Lake Worth (Intra-costal waterway) is and will continue to be used for once-through cooling water for the Riviera conversion. After the conversion, the amount of cooling water required will not exceed current permit limits. (TR 290-291)

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In conclusion, staff believes that the cost information presented in the record demonstrates that the construction of WCEC 3 and the conversions will not only provide adequate electricity, but also ensure the most reasonable costs to ratepayers.

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**Issue 4:** Is there a need for WCEC 3, taking into account the need for fuel diversity and supply reliability, as this criterion is used in Section 403.519, Florida Statutes?

**Recommendation:** Yes. While adding WCEC 3 in 2011 followed by the Riviera and Cape Canaveral conversions will not change FPL's generation mix, which will remain predominately natural gas, building additional coal or nuclear generation by 2013 is not feasible. The addition of WCEC 3 followed by the conversions will, however, lead to reductions in the amount of natural gas and fuel used. The addition of WCEC 3 and the conversions will also lead to an overall increase in system efficiency of 1.4 percent for WCEC 3 and 1.1 percent for the conversions for an overall system efficiency of 2.5 percent. (S. Brown, Garl, Lester)

**FPL's Position:** Yes. With the addition of WCEC 3 in 2011, FPL's overall system fuel efficiency will improve by 1.4% in the period of June 2011 through June 2013, reducing FPL's use of natural gas by about 18 million MMBtu and fuel oil by about 13.6 million MMBtu (or 2.1 million barrels).

**Staff Analysis:** The Commission reviews the need for fuel diversity in its evaluation of utility generation expansion plans as part of its annual Ten-Year Site Plan review process. In 2006, the Florida Legislature amended Section 403.519, F.S., to require the Commission to specifically consider the need for fuel diversity on a utility's system when evaluating a petition for need.

The decision to build WCEC 3 is primarily driven by economic and environmental benefits. (TR 96) In addition, building WCEC 3 in 2011 will allow for the conversion of FPL's inefficient, 1960s-era Cape Canaveral and Riviera plants to highly efficient state of the art combined cycle units. Coal and nuclear generation have longer construction times and would not be able to provide the additional capacity in the time needed. Therefore, FPL's only available option for base load capacity is natural gas.

At the hearing, the question was raised whether there is an adequate supply of natural gas available to provide reliable service to customers. (TR 543) FPL asserts that there will be an adequate supply of natural gas available to fuel WCEC 3 for the life of the unit. (FPL BR 7, TR 392-393, 545) In support of its position on natural gas availability, FPL further states that it was provided with projected natural gas supply and demand balance availability from the PIRA Energy Group. (FPL BR 7, EXH 100) FPL contends that those projections demonstrate the adequacy of natural gas supply. (FPL BR 7-8)

Staff reviewed a document from the PIRA Energy Group, which contained information regarding the natural gas supply and demand balance. (EXH 2 Bates Stamp 00000057-00000096, EXH 100) As such, staff agrees with FPL that an adequate supply of natural gas will be available for the proposed WCEC and conversion projects.

FPL plans to supply WCEC 3 through existing capacity arrangements with the Gulfstream Natural Gas System's (Gulfstream) pipeline that now serves FPL's Martin and Manatee plants. Florida Gas Transmission will expand its pipeline system to begin serving the Martin and Manatee plants. (TR 372-373) For the conversions, FPL is in discussion with multiple pipeline companies regarding supply of gas to the Canaveral and Riviera plants. FPL

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expects to have firm transportation arrangements for these plants by late 2008. (TR 383, 387, 400; EXH 2 Bates Stamp 00000586)

FPL's generation mix is still predominately natural gas. The addition of WCEC 3 in 2011 will improve FPL's overall fuel efficiency by approximately 1.4 percent, resulting in a reduction of total oil and gas consumption by approximately 29 million MMBtu through 2017 compared to FPL's base case. (EXH 2 Bates Stamp 00000485) Compared to the resource plan that includes WCEC 3 in 2011 without conversions, the addition of conversions will improve FPL's system average heat rate by about 1.1 percent. The construction of WCEC 3 and the conversion of the Cape Canaveral and Riviera units will not change FPL's generation fuel mix as a percentage of net energy for load. Compared to FPL's base plan, adding WCEC 3 in 2011 followed by the conversion projects is projected to reduce total oil and gas consumption by approximately 87.8 million MMBtu through 2017 and is summarized in the table below:

Total Oil and Gas Usage		
Plan	Usage to 2017 (MMBtu x 1,000)	2017 Differential from Base Case (MMBtu x 1,000)
Base Case	5,655,313	0
WCEC 3 w/o Conversions	5,625,803	-29,510
WCEC 3 w/ Conversions	5,567,464	-87,849

In conclusion, staff believes that FPL has demonstrated that the addition of WCEC 3 and the conversions of the Cape Canaveral and Riviera plants will result in a reduction of dependence on natural gas and fuel oil, because it will reduce FPL's total oil and gas consumption by approximately 87.8 million MMBtu through 2017. Building coal or nuclear generation by 2013 is not feasible because of the construction and permitting lead times for those types of generation.



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**Issue 5:** Are there any renewable energy sources and technologies or conservation measures taken by or reasonably available to FPL which might mitigate the need for WCEC 3?

**Recommendation:** No. FPL's forecasted reliability need already accounts for all the identified cost-effective DSM and renewable generation. The amount of DSM and renewable generation included is the same as the amount the Commission approved as reasonable in Docket No. 070650-EI. (Webb)

**FPL's Position:** No. FPL's forecasted need already accounts for all the cost-effective DSM identified through 2014 and projected through 2017, and available renewable resources including the planned renewal of its existing firm renewable capacity purchase contracts and 126 MW of new renewable firm capacity.

**Staff Analysis:** FPL asserts that neither renewable resources nor cost-effective conservation and DSM can mitigate the need for WCEC 3, and that FPL's forecasted need already accounts for all the cost-effective DSM identified through the planned implementation year of WCEC 3. (FPL BR 8, TR 150)

In assessing the availability of DSM to meet its energy needs, FPL used the same assumptions that were used in the recently approved Turkey Point nuclear proceedings.<sup>6</sup> (TR 466, 518) An estimated 5,513,458 residential customers have participated in FPL's DSM programs through 2007, along with approximately 178,203 commercial customers. (EXH 2 Bates Stamp 00000418) In 2007, 165,575 residential DSM audits were performed by FPL. For commercial customers, 11,755 DSM audits were performed by FPL. (EXH 2 Bates Stamp 00000419) FPL described its recent and continuing efforts to educate customers on the benefits of energy conservation via DSM programs, including its outreach and participation at events attended by FPL customers. (EXH 2 Bates Stamp 00000421) Accounting for reserve margin requirements, FPL's DSM efforts through 2007 have eliminated the need to construct the equivalent of approximately 12 new 400 MW generating units. (TR 470) FPL's initial projection indicates a savings of 3,030 MW of summer demand from the year 2008 through the year 2017. (EXH 38) This represents an expected increase in DSM savings of 1,122 MW from 2008 through 2017 upon which FPL based its projection of need for the proposed plants. FPL evaluates DSM programs based on performance against the rate impact measure and participant tests, and screens out measures that would have a payback period of less than two years for consumers.<sup>7</sup> (TR 471)

In April of 2007, FPL issued a request for proposals (RFP) for renewable generation extending to 2015. The responding bids equated to 126 MW of capacity. (TR 166-167) The amount of capacity that resulted from the bids of the April 2007 RFP would not be able to mitigate the need for the proposed WCEC 3 or conversion projects. No contracts resulted from the RFP due to FPL's determination that the costs were excessive. (TR 167) In 2008, FPL again issued an RFP for renewable generation, receiving proposals for 262 MW. (TR 167) The deadline for the proposals was less than two weeks prior to the date of the hearing, which

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<sup>6</sup> Order No. PSC-08-0237-FOF-EI, issued April 11, 2008, in Docket No. 070650-EI, In re: Petition to determine need for Turkey Point Nuclear Units 6 and 7 electrical power plant, by Florida Power & Light Company.

<sup>7</sup> Order No. PSC-04-0763-PAA-EG, issued August 9, 2004, in Docket No. 040029-EG, In re: Petition for approval of numeric conservation goals by Florida Power & Light Company.

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allowed insufficient time for FPL to evaluate the responses. (TR 167) However, even if all contracts were signed, it would still not defer the need for WCEC 3 and the Conversion units. (TR 167)

Witness Sim testified that if the \$3.26 billion of installed capital dollars that the proposed WCEC 3 and Conversion units are projected to cost were applied to a hypothetical installation of renewables, that dollar amount would result in an estimated 90 MW of incremental firm summer capacity from photovoltaics, or 220 MW of summer demand reduction from solar water heaters. (TR 551-552) Further, FPL indicated that the photovoltaic capacity purchased would require approximately 2,800 acres of land to install, whereas the proposed WCEC 3 and the two conversions would be constructed on land already dedicated to power plants, and thus would not require the purchase of additional land. (TR 551) The customers to be served by the hypothetical photovoltaic facility would serve an estimated 56,000 customers compared to Witness Sim's estimation that the three generating units would serve approximately 2 million customers. (TR 551) The customers to be served by the hypothetical solar water heaters would total approximately 1.1 million; however, those customers would have only those costs offset that relate to water heating. (TR 552)

FPL has proposed to install renewable resources in addition to proposed plants. FPL indicated three planned commercial scale solar projects: (EXH 2 Bates Stamp 00000402-00000403)

A 75 MW solar thermal installation at FPL's Martin facility on 600 acres of land to be completed by 2010;

A 25 MW photovoltaic installation on FPL property on 180 acres in DeSoto County to be completed by 2010;

A 10 MW photovoltaic installation at NASA's Kennedy Space Center in Brevard County on 60 acres of land.

FPL plans to install up to six wind turbine generators on FPL's property on Hutchinson Island in St. Lucie County. (EXH 2 Bates Stamp 00000414) Local, state, and federal permits and approvals have not been attained, which could impact the estimated in-service date of 2010. (EXH 2 Bates Stamp 00000414) This St. Lucie Wind Project would total an estimated 13.8 MW on approximately 20 acres. (EXH 2 Bates Stamp 00000414)

Based on the record, staff believes there are no additional renewable energy sources and technologies or cost-effective conservation measures available that might mitigate FPL's need for the proposed WCEC 3 in 2011 and conversions of the Cape Canaveral and Riviera plants. FPL states that while it will continue to pursue renewable resource opportunities, both purchased and self-built, DSM and renewable resources will not be sufficient to meet FPL's future need for more than 4,800 megawatts of new generating capacity through 2017. (TR 150)

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**Issue 6:** Is WCEC 3 the most cost-effective alternative available, as this criterion is used in Section 403.519, Florida Statutes?

**Recommendation:** Yes. FPL's economic analysis of WCEC 3 and conversion of the Riviera and Cape Canaveral units utilized a reasonable range of fuel and environmental costs. Together, these three projects will result in the greatest savings for FPL's ratepayers. (S. Brown, Garl, Wu)

**FPL's Position:** Yes. Adding WCEC 3 in 2011 will result in customer savings of about \$735 million CPVRR compared to adding a similar unit in 2013, and \$606 million CPVRR compared to the best alternative proposed in response to FPL's RFP. No self-build or proposed alternative is more cost effective.

**Staff Analysis:** FPL contends that adding WCEC 3 in 2011 is more cost-effective than its other self-build options, and more cost-effective than all proposals received in response to its 2007 RFP. (FPL BR 10, TR 458, 460, 494) WCEC 3 in 2011 would result in customer savings of about \$460 million CPVRR compared to adding a similar unit at a greenfield site in 2013. (FPL BR 10, TR 536) If the conversion projects were added to the plan of the proposed WCEC 3 in 2011, FPL asserts that its customers would experience even greater cost savings. (FPL BR 25, 32, TR 515, 537) Finally, FPL states that if the environmental and fuel costs were higher, the economic benefits to customers would be greater. (FPL BR 33, TR 527)

As mentioned in Issue 2, staff recommends that FPL has demonstrated a reliability need for additional resource capacity in 2013. Typically, when a company seeks to satisfy the need for additional resource capacity using natural gas facilities, a petition for need determination would be submitted to the Commission approximately 3 years before the facility's in-service date. The company decided, however, that unique economic opportunities and site-specific circumstances make it cost-effective to build WCEC 3 for operation in 2011 and perform the conversions at Cape Canaveral and Riviera by 2013 and 2014, respectively. (TR 157)

Because of the complimentary benefits and unique timing of these need determinations, staff decided to analyze the three petitions for need of WCEC 3 and the Cape Canaveral and Riviera conversions as a single package. The evidence in these proceedings demonstrates that the addition of WCEC 3 and the conversions is the most cost-effective optimization of FPL's required capacity additions. In order to optimize the base plan, FPL has strategically used the proposed WCEC 3 in 2011 followed by the conversions to reduce the amounts of fuel used and subsequent emission reductions to bring economic savings to its ratepayers.

FPL's fuel mix is still predominately natural gas. However, the addition of WCEC 3 and the conversions will improve FPL's overall fuel efficiency, resulting in a reduction of total oil and gas consumption by its customers. This in turn would lead to additional economic savings by displacing less efficient units with cleaner, more efficient generating units. In addition, WCEC 3 in 2011 would lead to a reduction of approximately 29,510 million MMBtu of oil and natural gas usage by year 2017. Including the conversions with WCEC 3 in 2011 would lead to additional savings and a reduction of approximately 87,849 million MMBtu of oil and natural gas over the same time period. (EXH 2 Bates Stamp 000485) The following table illustrates how FPL was able to optimize on the base case to bring additional fuel savings to its customers:

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Total Oil and Gas Usage		
Plan	Usage to 2017 (MMBtu x 1,000)	2017 Differential from Base Case (MMBtu x 1,000)
Base Case	5,655,313	0
WCEC 3 w/o Conversions	5,625,803	-29,510
WCEC 3 w/ Conversions	5,567,464	-87,849

Compared to the base case, the addition of WCEC 3 in 2011 will reduce the overall emissions on FPL's system. The reduction in emissions will be even greater when including the conversions with the addition of WCEC 3 in 2011. Witness Silva testified that system fuel efficiency improvement achieved due to the conversion projects is the only way that FPL can significantly reduce CO<sub>2</sub> emissions until the new nuclear generating units are added to FPL's system in 2018. (TR 149-150) Witness Silva further testified that the conversions will also result in reduced emissions of SO<sub>2</sub> and NO<sub>x</sub>. (TR 150) FPL states that the proposed WCEC 3 and the conversions will contribute significantly toward achieving the CO<sub>2</sub> emission targets reflected in the Governor's Executive Order 07-127. (TR 106, 137) The following chart addresses the emissions that were analyzed by staff regarding the proposed WCEC 3 and other resource plans. The chart also reveals that of the three gases emitted, NO<sub>x</sub>, not CO<sub>2</sub>, will have the greatest percentage emission savings:

Projected Emissions Analysis 2010-2017										
Plan	SO <sub>2</sub> (tons)	Difference from Base	SO <sub>2</sub> % Difference	NO <sub>x</sub> (tons)	Difference from Base	NO <sub>x</sub> % Difference	CO <sub>2</sub> (million tons)	Diff. From Base	CO <sub>2</sub> % Diff.	
Base Case	453,874	0	0%	165,901	0	0%	493	0	0	
WCEC 3 w/o Conv.	432,805	-21,069	-4%	154,346	-11,555	-7%	490	-3	0%	
WCEC 3 w/Conv.	409,576	-44,298	-10%	134,713	-31,188	-23%	485	-8	-1%	

As previously mentioned in Issue 3, the total estimated installed cost for the proposed WCEC 3 is \$709/kw. This estimated cost is less than a greenfield combined-cycle generating unit the cost of which is estimated at \$1,076/kw. In addition, FPL is currently constructing West County Units 1 and 2 on the same site in which the proposed WCEC 3 is to be built. If the decision to build new generation is delayed until 2013, a negative result would be that the site

may not be viable for expansion due to the higher costs and availability of cooling water and costs due to the re-mobilization of construction workers. (TR 251-252)

FPL's fuel and environmental forecasts for WCEC 3 were based on 2007 forecasts. Those forecasts revealed that the addition of WCEC 3 in 2011 would result in customer savings of about \$460 million CPVRR compared to adding a similar unit at a Greenfield site in 2013. (TR 536) In response to staff discovery, FPL provided updated 2008 fuel and environmental cost estimates for the proposed WCEC 3 in 2011 using the updated March 13, 2008, forecasts. (EXH 2) The results demonstrated that projected savings for WCEC 3 in 2011 increased to \$735 million CPVRR. (TR 536) FPL's fuel and environmental forecasts for the conversion projects used the March 13, 2008 forecasts. The results revealed that the conversions alone would generate savings of \$457 CPVRR for FPL's ratepayers. (TR 138, 526) As a result of the new forecasts, the package containing WCEC 3 and the conversions would bring savings of approximately \$1.2 billion CPVRR to FPL's ratepayers, compared to the base case. (TR 536-537) The following chart addresses the financial assumptions that were analyzed by staff regarding FPL's proposal. The chart shows that the savings to FPL's ratepayers will begin in the near term (2017) and become even greater through the projected life of the units (2040):

Projected Financial Assumptions thru 2040				
Plan	CPVRR (millions thru 2017)	Difference from Base (millions thru 2017)	CPVRR (millions thru 2040)	Difference from Base (millions thru 2040)
Base Case	\$54,194	\$0	\$168,105	\$0
WCEC 3 w/o Conv.	\$53,887	\$-307	\$167,370	\$-735
WCEC 3 w/Conv.	\$53,771	\$-423	\$166,913	\$-1,192

### Strategic Considerations

FPL's witness Gnecco testified that in addition to cost efficiencies, the addition of WCEC Unit 3 in 2011 provides greater assurance of water availability for the project than adding the Unit 3 in 2013. (TR 252) FPL has considered the availability of an alternative water supply if surface and groundwater sources of water in the region are declining due to recent droughts. FPL then confirmed access to water from other alternative sources for use at WCEC, primarily from reclaimed water. (TR 171, 249) FPL believes that competition for reclaimed water for other agricultural, industrial, and commercial use is expected to occur in the not too distant future. (EXH 2 Bates Stamp 00000293) FPL perceived that its ability to utilize this water supply sooner rather than later would provide FPL with a greater assurance of water availability for the addition of Unit 3 at the WCEC site. (EXH 2 Bates Stamp 00000293)

In conclusion, compared to the base case and WCEC 3 without conversions plans, the analyses show that the proposed WCEC 3 in 2011 with conversions is the most cost-effective alternative available to FPL and its ratepayers. In response to staff discovery, FPL provided updated environmental and fuel cost forecasts which revealed even greater savings for FPL's ratepayers. (EXH 2 Bates Stamp 00000476)

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**Issue 7:** Based on the resolution of the foregoing issues, should the Commission grant Florida Power & Light Company's petition to determine need for WCEC 3?

**Recommendation:** Yes. (S. Brown, Garl)

**FPL's Position:** Yes. The addition of WCEC 3 in 2011 is the most cost-effective choice, will reduce FPL's system oil and natural gas fuel usage in 2011-2013, and make it possible from a system reliability perspective to pursue the Cape Canaveral Conversion and the Riviera Conversion.

**Staff Analysis:** FPL asserts that the evidence presented demonstrated that WCEC 3 in 2011, as well as the proposed conversions, satisfies all criteria listed in Section 403.519, F.S. (FPL BR 11, 26, 33) FPL further contends that when compared to other self-build alternatives, WCEC 3 in 2011 without the conversions is the most cost-effective choice available by \$137 million to \$735 million CPVRR. (FPL BR 11, TR 536) When combined, the proposed WCEC 3 and the conversions are estimated to save FPL's ratepayers approximately \$1.2 billion by the year 2040. (TR 58-59, 149) Furthermore, FPL argues that if the company were to delay the addition of WCEC 3 beyond 2011, it would not be able to move forward with its conversions of the Cape Canaveral and Riviera plants, thereby missing out on the benefits associated with those projects. (FPL BR 11, TR 71, 77, 96)

Staff believes the evidence in the foregoing issues demonstrates that, based on maintaining a 20 percent reserve margin planning criterion, FPL will have a reliability need for additional capacity in the summer of 2013. If granted approval to build WCEC 3 in 2011, FPL can remove the Cape Canaveral and Riviera plants from operation in 2010. FPL can then convert the steam electric generating units, which have been in operation since the 1960s, to high-efficiency combined cycle power plants, and return them to operation in 2013 and 2014.

As discussed in Issue 6, WCEC 3 is projected to be approximately \$735 million less expensive than FPL's base case expansion plan. The acceleration of WCEC 3 allows for the conversion of Cape Canaveral and Riviera plants, which are projected to increase savings to FPL ratepayers of approximately \$1.2 billion. (TR 58-59, 149)

In conclusion, if the Commission approves staff's recommendation on the foregoing issues, staff recommends that the Commission grant FPL's petition to determine need for WCEC 3 and the conversions of the Cape Canaveral and Riviera plants.

Date: August 7, 2008

**Issue 8:** If an affirmative determination of need is granted, should FPL be required to annually report the budgeted and actual cost compared to the estimated total in-service cost of the proposed WCEC 3?

**Recommendation:** Yes. Since the construction of WCEC 3 and the conversion projections are interrelated, FPL should annually report to the Director of the Division of Economic Regulation the budgeted and actual cost compared to the estimated total in-service cost of the proposed WCEC 3, Cape Canaveral Conversion, and Riviera Conversion relied upon in these proceedings. (S. Brown, Garl)

**FPL's Position:** FPL will annually report the budgeted and actual cost compared to the estimated total in-service cost of the proposed WCEC 3.

**Staff Analysis:** FPL has confirmed that it will report, on an annual basis, budgeted and actual costs compared to the estimated total in-service cost of the proposed WCEC 3, Cape Canaveral, and Riviera units. The report should be submitted to the Director of the Division of Economic Regulation. In addition, FPL also agreed that if a different combustion turbine design from the one presented in these proceedings is chosen, FPL will report to the Commission the comparative cost advantage of the alternate design chosen. (FPL BR 26-27, TR 155) Such a selection would only be made if the projected cost to FPL's customers would be lower as a result of the use of an alternate design. (FPL BR 26-27, TR 155)

Date: August 7, 2008

**Issue 9:** Should FPL be granted an exemption from Rule 25-22.082, Florida Administrative Code, with respect to the conversion of the Riviera plant?

**Recommendation:** Yes. FPL's plan with the conversions is more cost-effective than the plan that was compared to the RFP responses. Therefore, FPL has demonstrated that the conversion projects will likely result in a lower cost supply of electricity and should be granted an exemption from the requirements of Rule 25-22.082(18), F.A.C. Since the construction of WCEC 3 and the conversion projections are interrelated, costs in addition to those identified in this need determination proceeding for all 3 projects should not be recoverable unless FPL can demonstrate that such costs were prudently incurred and due to extraordinary circumstances. (S. Brown, Garl, M. Brown, Klancke)

**FPL's Position:** Yes. The conversion satisfies each of the three available bases for an exemption by providing CPVRR savings to customers, providing highly reliable capacity, and serving the public welfare by reducing emissions and fossil fuel usage. Customers will remain fully protected by the Commission's ratemaking authority.

**Staff Analysis:** Rule 25-22.082(18), F.A.C., provides:

Upon a showing by a public utility and a finding by the Commission that a proposal not in compliance with this rule's provisions will likely result in a lower cost supply of electricity to the utility's general body of ratepayers, increase in the reliable supply of electricity to the utility's general body of ratepayers, or otherwise will serve the public welfare, the Commission shall exempt the utility from compliance with the rule or any part of it for which such justification is found.

FPL contends that if WCEC 3 is placed into service in 2011, the company will have the opportunity to convert the older, inefficient Riviera and Cape Canaveral plants into highly efficient combined cycle power plants. (FPL BR 13) Together, the conversion projects are expected to result in customer savings of \$457 million CPVRR. (FPL BR 13, TR 504, 526-527, EXH 2 Bates Stamp 00000004)

FPL used the December 13, 2007, RFP that was conducted for WCEC 3 to compare the conversion projects. FPL asserted that the proposals received for the WCEC 3 RFP are similar to proposals that would likely have been received in response to an RFP for the conversions. (TR 159) An independent evaluator reviewed FPL's evaluation and determined that the plan with the conversion projects was \$481 million CPVRR less expensive than the most economic resource plan using proposals received in response to the RFP. (TR 196) The conversion projects will be more cost-effective compared to using the purchased power proposals that were evaluated. (TR 191)

As discussed in Issue 6, FPL has shown that its plan for WCEC 3 with conversions is more cost-effective than the plan that was compared to the RFP responses. Staff can infer from this evidence that the conversion projects will likely result in a lower cost supply of electricity, and therefore should be granted an exemption from the requirements of Rule 25-22.082(18),



F.A.C. As discussed in Issue 8, FPL will be required to annually report the budgeted versus actual construction expenses for all three projects.

In conclusion, staff believes FPL should be granted an exemption from Rule 25-22.082, F.A.C., with respect to the Cape Canaveral and Riviera projects. FPL issued a Request for Proposals (RFP) for the WCEC 3 unit consistent with the requirements of Rule 25-22.082(18), F.A.C., on December 13, 2007. (TR 478) The WCEC 3 RFP was used as a proxy for conducting an additional RFP for the proposed conversions. (TR 159) The RFP's process was conducted in accordance with guidelines provided by the Bid Rule. (TR 459, 478, 201-202) Staff recommends that FPL has shown that the conversion projects will result in a lower cost supply of electricity and increase the reliable supply of electricity and, therefore, FPL is entitled to an exemption from the Bid Rule. In light of the fact that the projects are interrelated, staff recommends that FPL should be required to annually report the budgeted versus actual construction expenses for all three projects. Costs in addition to those identified in this need determination proceeding should not be recoverable unless FPL can demonstrate that such costs were prudently incurred and due to extraordinary circumstances.

Date: August 7, 2008

**Issue 10:** Is there a need for the conversion of the Riviera plant, taking into account the need for electric system reliability and integrity, as this criterion is used in Section 403.519, Florida Statutes?

**Recommendation:** Yes. FPL has demonstrated a reliability need in the summer of 2013 based on maintaining a 20 percent reserve margin planning criterion. The construction of WCEC 3 in 2011 will provide adequate generating capacity to allow for the conversions of the existing Cape Canaveral and Riviera generating units and will not adversely impact system reliability. (S. Brown, Garl, Hewitt)

**FPL's Position:** Yes. From 2011 through 2017, FPL will need to add 4,844 MW of new generating capacity, after accounting for all identified cost-effective DSM and available renewable resources. The Riviera Conversion will provide 642 MW of net generating capacity to help satisfy this need.

**Staff Analysis:** As discussed in Issue 2, the conversion of the Riviera and Cape Canaveral units would add approximately 1,069 MW of incremental capacity to FPL's system. (TR 112, 135-136) FPL's base case plan would add new combined-cycle generation in the years 2013, 2014, and 2016 in order to maintain a 20 percent reserve margin. (EXH 39) If a 15 percent reserve margin planning criterion was assumed, FPL's initial reliability need could be delayed until 2014. (EXH 2 Bates Stamp 00000303) Under different circumstances, FPL would not file a petition for a determination of need until sometime in 2010. As discussed in previous issues, the decision to convert the Riviera generating unit is driven by unique economic opportunities and site-specific circumstances. (TR 157) After the addition of WCEC 3 in 2011, FPL's reserve margin will be approximately 27.9 percent. The construction of WCEC 3 in 2011 will provide adequate generating capacity to allow for the removal from service the existing Riviera generating unit in order to pursue the conversion of the facility and not adversely impact system reliability. (FPL BR 11) When the Riviera and Cape Canaveral units are removed from service, FPL's reserve margin would drop to approximately 21.7 percent in the year 2011. (TR 520) If WCEC 3 was not added in 2011, and FPL continued to pursue the conversions of the Cape Canaveral and Riviera units, FPL's reserve margin would drop below 20 percent beginning in 2011 and beyond. (EXH 2 Bates Stamp 00000458) As discussed in Issues 14 and 22, the decision to convert the existing Riviera and Cape Canaveral units are more cost-effective than FPL's base case plan of adding new greenfield generation in 2013 and 2014.

In conclusion, the evidence shows that FPL will have a need for approximately 4,844 MW of additional capacity beginning in the 2011 through 2017 period. (TR 69, 74, 104) The decision to build WCEC in 2011 followed by the Riviera and Cape Canaveral conversions is driven by unique economic opportunities and site-specific circumstances, as discussed in Issue 6.

Date: August 7, 2008

**Issue 11:** Is there a need for the conversion of the Riviera plant, taking into account the need for adequate electricity at a reasonable cost, as this criterion is used in Section 403.519, Florida Statutes?

**Recommendation:** Yes. FPL has adequately demonstrated a need for WCEC 3 in 2011 and the conversions of the Riviera and Cape Canaveral plants. The cost estimates presented by all three projects consisting of capital costs, fuel costs, emission costs and water are reasonable. (S. Brown, Garl, Lester, Springer, Wu)

**FPL's Position:** The Riviera Conversion will take advantage of an existing site and infrastructure, with less cost uncertainty than building a unit at a greenfield site. Furthermore, FPL's analyses show that the resource plan with the Riviera and Cape Canaveral Conversions is projected to save customers \$457 million CPVRR.

**Staff Analysis:** As discussed in Issue 3, the total estimated installed cost for the conversion of the Riviera plant is \$1,057/kW. (EXH 2 Bates Stamp 00000223) This cost estimate is comparable to a new greenfield combined cycle unit but does not include the impact of retiring the existing Riviera generating units. (EXH 2 Bates Stamp 00000448) Any future recovery of costs for the Riviera conversions should take into account the retirement of the existing units.

Staff analyzed the proposed WCEC 3 and conversions of the Riviera and Cape Canaveral units as a single package. Therefore, the same financial, cost estimate, and forecast assumptions used in Issue 3 were used in this analysis and is discussed fully in Issue 3. Staff believes FPL's assumptions are reasonable.

In conclusion, staff believes that the cost information presented in the record demonstrates that the construction of WCEC 3 and the conversions of the Riviera and Cape Canaveral units will not only provide adequate electricity, but also ensure the most reasonable costs to ratepayers.

Date: August 7, 2008

**Issue 12:** Is there a need for the conversion of the Riviera plant, taking into account the need for fuel diversity and supply reliability, as this criterion is used in Section 403.519, Florida Statutes?

**Recommendation:** Yes. While adding WCEC 3 in 2011 followed by the Riviera and Cape Canaveral conversions will not change FPL's generation mix, which will remain predominately natural gas, building additional coal or nuclear generation by 2013 is not feasible. The addition of WCEC 3 followed by the conversions will, however, lead to reductions in the amount of natural gas and fuel used. The addition of WCEC 3 and the conversions will also lead to an overall increase in system efficiency of 1.4 percent for WCEC 3 and 1.1 percent for the conversions for an overall system efficiency of 2.5 percent. (S. Brown, Garl, Lester)

**FPL's Position:** The conversions will improve FPL's system heat rate by about 1.1% compared to the Resource Plan without Conversions, reducing FPL's natural gas use by about 10.6 million MMBtu and fuel oil use by about 47.8 million MMBtu in 2013-2017.

**Staff Analysis:** As discussed in Issue 4, the conversions will improve FPL's overall fuel efficiency by approximately 1.1 percent. (TR 505, 530-531) The conversion projects are projected to result in a reduction of total oil and gas consumption by approximately 58.3 million MMBtu through 2017 compared to a plan that adds WCEC 3 in 2011 followed by a greenfield generating unit in 2014. (EXH 2 Bates Stamp 00000485) Compared to FPL's base plan, adding WCEC 3 in 2011 followed by the conversion projects is projected to reduce total oil and gas consumption by approximately 87.8 million MMBtu through 2017. (EXH 2 Bates Stamp 00000485)

Staff has analyzed the three projects together as one package. Therefore, the discussion on this issue regarding the need for fuel diversity and supply reliability is fully addressed in Issue 4.

In conclusion, staff believes that FPL has demonstrated that the addition of WCEC 3 and the conversions of the Cape Canaveral and Riviera plants will result in a reduction of dependence on natural gas and fuel oil, because it will reduce FPL's total oil and gas consumption by approximately 87.8 million MMBtu through 2017. (EXH 2 Bates Stamp 00000485) Building coal or nuclear generation by 2013 is not feasible because of the construction and permitting lead times for those types of generation. (TR 238)

Date: August 7, 2008

**Issue 13:** Are there any renewable energy sources and technologies or conservation measures taken by or reasonably available to FPL which might mitigate the need for the conversion of the Riviera plant?

**Recommendation:** No. FPL's forecasted reliability need already accounts for all the identified cost-effective DSM and renewable generation. The amount of DSM and renewable generation included is the same as the amount the Commission approved as reasonable in Docket No. 070650-EI. (Webb)

**FPL's Position:** No. FPL's forecasted need already accounts for all the cost-effective DSM identified through 2014 and projected through 2017, and available renewable resources including the planned renewal of its existing firm renewable capacity purchase contracts and 126 MW of new renewable firm capacity.

**Staff Analysis:** As discussed in Issue 2, the decision to build WCEC 3 in advance of the identified reliability need is driven by unique economic opportunities and site specific circumstances. As discussed in Issue 5, the amount of DSM and renewable generation included is the same as the Commission approved as reasonable in Docket No. 070650-EI.

Staff has analyzed the three projects together as one package. Therefore, the discussion on this issue regarding the availability of renewable energy sources and technologies or conservation measures is fully addressed in Issue 5.

In conclusion, the record shows that cost-effective DSM and renewable generation cannot mitigate the need for these projects.

Date: August 7, 2008

**Issue 14:** Is the conversion of the Riviera plant the most cost-effective alternative available, as this criterion is used in Section 403.519, Florida Statutes?

**Recommendation:** Yes. FPL's economic analysis of WCEC 3 and conversion of the Riviera and Cape Canaveral units utilized a reasonable range of fuel and environmental costs. Together, these three projects will result in the greatest savings for FPL's ratepayers. (S. Brown, Garl)

**FPL's Position:** Yes. FPL's economic analysis shows that the Cape Canaveral Conversion in 2013 and the Riviera Conversion in 2014 will result in customer cost savings of about \$457 million CPVRR as compared to the Resource Plan without Conversions. Increased fuel costs will result in increased fuel cost savings.

**Staff Analysis:** As discussed in Issue 6, FPL's economic analyses utilized a reasonable range of fuel and environmental costs. As part of the discovery process, FPL provided an updated analysis based upon 2008 fuel and environmental costs estimates. (EXH 2 Bates Stamp 00000476-00000487) When compared to adding greenfield units in 2013 and 2014, the updated analyses indicate that adding WCEC 3 in 2011 followed by the conversion projects would result in a reduction of approximately 44,298 tons of SO<sub>2</sub> (9.8 percent); 31,188 tons of NO<sub>x</sub> (18.8 percent); and 8 million tons of CO<sub>2</sub> (1.6 percent) by the year 2017. (EXH 2 Bates Stamp 00000484) In addition, the updated analyses indicate that adding WCEC 3 in 2011 followed by the conversion projects would save approximately 87,849 million MMBtu of oil and natural gas over the same time period. (EXH 2 Bates Stamp 00000485) These environmental and fuel reduction benefits continue into the future and combine to result in an estimated savings to FPL's customers of approximately \$1.2 billion in present value savings by the year 2040. (TR 149, 536-537)

As previously stated, staff has analyzed the three projects together as one package. Therefore, the discussion on this issue regarding cost effectiveness is fully addressed in Issue 6.

In conclusion, compared to the base case and WCEC 3 without conversions plans, the analyses show that the proposed WCEC 3 in 2011 with conversions is the most cost-effective alternative available to FPL and its ratepayers.

**Issue 15:** Based on the resolution of the foregoing issues, should the Commission grant Florida Power & Light Company's petition to determine need for the conversion of the Riviera plant?

**Recommendation:** Yes. (S. Brown, Garl)

**FPL's Position:** Yes. The conversion will add reliable, efficient, and cost-effective capacity to FPL's system. When combined, the proposed conversions will result in an estimated \$457 million CPVRR of savings, a reduction in fossil fuel use, and a reduction in system cumulative CO<sub>2</sub> emissions of more than 15.7 million tons through 2040.

**Staff Analysis:** Staff believes the evidence in the foregoing issues demonstrates that, based on maintaining a 20 percent reserve margin planning criterion, FPL will have a reliability need for additional capacity in the summer of 2013. If granted approval to build WCEC 3 in 2011, FPL can remove the Cape Canaveral and Riviera plants from operation in 2010. FPL can then convert the steam electric generating units, which have been in operation since the 1960s, to high-efficiency combined cycle power plants, and return them to operation in 2013 and 2014.

As discussed in Issue 6, WCEC 3 is projected to be approximately \$735 million less expensive than FPL's base case expansion plan. The acceleration of WCEC 3 allows for the conversion of Cape Canaveral and Riviera plants, which are projected to increase savings to FPL ratepayers of approximately \$1.2 billion. (TR 58-59, 149)

In conclusion, if the Commission approves staff's recommendation on the foregoing issues, staff recommends that the Commission grant FPL's petition to determine need for WCEC 3 and the conversions of the Cape Canaveral and Riviera plants.

**Issue 16:** If an affirmative determination of need is granted, should FPL be required to annually report the budgeted and actual cost compared to the estimated total in-service cost of the proposed Riviera Conversion?

**Recommendation:** Yes. Since the construction of WCEC 3 and the conversion projections are interrelated, FPL should annually report to the Director of The Division of Economic Regulation the budgeted and actual cost compared to the estimated total in-service cost of the proposed WCEC 3, Cape Canaveral Conversion, and Riviera Conversion relied upon in these proceedings. (S. Brown, Garl)

**FPL's Position:** FPL will annually report this information. Also, if FPL decides to utilize a different combustion turbine design from the one analyzed in its testimony for the two conversion projects, FPL will report to the Commission the comparative cost advantage of the alternate design chosen.

**Staff Analysis:** FPL has confirmed that it will report, on an annual basis, budgeted and actual costs compared to the estimated total in-service cost of the proposed WCEC 3, Cape Canaveral, and Riviera units. The report should be submitted to the Director of the Division of Economic Regulation. In addition, FPL also agreed that if a different combustion turbine design from the one presented in these proceedings is chosen, FPL will report to the Commission the comparative cost advantage of the alternate design chosen. (FPL BR 26-27, TR 155) Such a selection would only be made if the projected cost to FPL's customers would be lower as a result of the use of an alternate design. (FPL BR 26-27, TR 155)



Date: August 7, 2008

**Issue 17:** Should FPL be granted an exemption from Rule 25-22.082, Florida Administrative Code, with respect to the conversion of the Cape Canaveral plant?

**Recommendation:** Yes. FPL's plan with the conversions is more cost-effective than the plan that was compared to the RFP responses. Therefore, FPL has demonstrated that the conversion projects will likely result in a lower cost supply of electricity and should be granted an exemption from the requirements of Rule 25-22.082(18), F.A.C. Since the construction of WCEC 3 and the conversion projections are interrelated, costs in addition to those identified in this need determination proceeding for all 3 projects should not be recoverable unless FPL can demonstrate that such costs were prudently incurred and due to extraordinary circumstances. FPL should be required to annually report the budgeted vs. actual construction expenses for all three projects. (S. Brown, Garl, M. Brown, Klancke)

**FPL's Position:** Yes. The conversion satisfies each of the three available bases for an exemption by providing CPVRR savings to customers, providing highly reliable capacity, and serving the public welfare by reducing emissions and fossil fuel usage. Customers will remain fully protected by the Commission's ratemaking authority.

**Staff Analysis:** Rule 25-22.082(18), F.A.C., provides:

Upon a showing by a public utility and a finding by the Commission that a proposal not in compliance with this rule's provisions will likely result in a lower cost supply of electricity to the utility's general body of ratepayers, increase in the reliable supply of electricity to the utility's general body of ratepayers, or otherwise will serve the public welfare, the Commission shall exempt the utility from compliance with the rule or any part of it for which such justification is found.

FPL contends that if WCEC 3 is placed into service in 2011, the company will have the opportunity to convert the older, inefficient Riviera and Cape Canaveral plants into highly efficient combined cycle power plants. (FPL BR 13) Together, the conversion projects are expected to result in customer savings of \$457 million CPVRR. (FPL BR 13, TR 504, 526-527, EXH 2 Bates Stamp 00000004)

FPL used the December 13, 2007, RFP that was conducted for WCEC 3 to compare the conversion projects. FPL asserted that the proposals received for the WCEC 3 RFP are similar to proposals that would likely have been received in response to an RFP for the conversions. (TR 159) An independent evaluator reviewed FPL's evaluation and determined that the plan with the conversion projects was \$481 million CPVRR less expensive than the most economic resource plan using proposals received in response to the RFP. (TR 196) The conversion projects will be more cost-effective compared to using the purchased power proposals that were evaluated. (TR 191)

As discussed in Issue 6, FPL has shown that its plan for WCEC 3 with conversions is more cost-effective than the plan that was compared to the RFP responses. Staff can infer from this evidence that the conversion projects will likely result in a lower cost supply of electricity, and therefore should be granted an exemption from the requirements of Rule 25-22.082(18),

F.A.C. As discussed in Issue 16, FPL will be required to annually report the budgeted versus actual construction expenses for all three projects.

In conclusion, staff believes FPL should be granted an exemption from Rule 25-22.082, F.A.C., with respect to the Cape Canaveral and Riviera projects. FPL issued a Request for Proposals (RFP) for the WCEC 3 unit consistent with the requirements of Rule 25-22.082(18), F.A.C., on December 13, 2007. (TR 478) The WCEC 3 RFP was used as a proxy for conducting an additional RFP for the proposed conversions. (TR 159) The RFP's process was conducted in accordance with guidelines provided by the Bid Rule. (TR 459, 478, 201-202) Staff recommends that FPL has shown that the conversion projects will result in a lower cost supply of electricity and increase the reliable supply of electricity and, therefore, FPL is entitled to an exemption from the Bid Rule. In light of the fact that the projects are interrelated, staff recommends that FPL should be required to annually report the budgeted versus actual construction expenses for all three projects. Costs in addition to those identified in this need determination proceeding should not be recoverable unless FPL can demonstrate that such costs were prudently incurred and due to extraordinary circumstances.

Date: August 7, 2008

**Issue 18:** Is there a need for the conversion of the Cape Canaveral plant, taking into account the need for electric system reliability and integrity, as this criterion is used in Section 403.519, Florida Statutes?

**Recommendation:** Yes. FPL has demonstrated a reliability need in the summer of 2013 based on maintaining a 20 percent reserve margin planning criterion. The construction of WCEC 3 in 2011 will provide adequate generating capacity to allow for the conversions of the existing Cape Canaveral and Riviera generating units and will not adversely impact system reliability. (S. Brown, Garl, Hewitt)

**FPL's Position:** Yes. From 2011 through 2017, FPL will need to add 4,844 MW of new generating capacity, after accounting for all identified cost-effective DSM and available renewable resources. The Cape Canaveral Conversion will provide 427 MW of net generating capacity to help satisfy this need.

**Staff Analysis:** As discussed in Issue 2, the conversion of the Cape Canaveral and Riviera units would add approximately 1,069 MW of incremental capacity to FPL's system. (TR 112, 135-136) FPL's base case plan would add new combined-cycle generation in the years 2013, 2014, and 2016 in order to maintain a 20 percent reserve margin. If a 15 percent reserve margin planning criterion was assumed, FPL's initial reliability need could be delayed until 2014. Under different circumstances, FPL would not file a petition for a determination of need until sometime in 2010. The decision to convert the Cape Canaveral and Riviera generating units is driven by unique economic opportunities and site specific circumstances. After the addition of WCEC 3 in 2011, FPL's reserve margin will be approximately 27.9 percent. The construction of WCEC 3 in 2011 will provide adequate generating capacity to allow for the removal from service the existing Cape Canaveral and Riviera generating units in order to pursue the conversion of these facilities and not adversely impact system reliability. When the Canaveral and Riviera units are removed from service, FPL's reserve margin would drop to approximately 21.7 percent in the year 2011. If WCEC 3 was not added in 2011 and FPL continued to pursue the conversions of the Cape Canaveral and Riviera units, FPL's reserve margin would drop below 20 percent beginning in 2011 and beyond. (EXH 2 Bates Stamp 00000458) As discussed in Issues 14 and 22, the decision to convert the existing Cape Canaveral and Riviera units is more cost effective than FPL's base case plan of adding new greenfield generation in 2013 and 2014.

In conclusion, the evidence shows that, FPL will have a need for approximately 4,844 MW of additional capacity beginning in the 2011 through 2017 period. (TR 69, 74, 104) The decision to build WCEC in 2011 followed by the Riviera and Cape Canaveral conversions is driven by unique economic opportunities and site-specific circumstances, as discussed in Issue 6.

Date: August 7, 2008

**Issue 19:** Is there a need for the conversion of the Cape Canaveral plant, taking into account the need for adequate electricity at a reasonable cost, as this criterion is used in Section 403.519, Florida Statutes?

**Recommendation:** Yes. FPL has adequately demonstrated a need for WCEC 3 in 2011 and the conversions of the Riviera and Cape Canaveral plants. The cost estimates presented by all three projects consisting of capital costs, fuel costs, emission costs, and water are reasonable. (S. Brown, Garl)

**FPL's Position:** Yes. The Cape Canaveral Conversion will take advantage of an existing site and infrastructure, with less cost uncertainty than building a unit at a greenfield site. Furthermore, FPL's analyses show that the resource plan with the Riviera and Cape Canaveral Conversions is projected to save customers \$457 million CPVRR.

**Staff Analysis:** As discussed in Issue 3, the total estimated installed cost for the conversion of the Cape Canaveral plant is \$914/kW. (EXH 2 Bates Stamp 00000223) This cost estimate is comparable to a new greenfield combined cycle unit but does not include the impact of retiring the existing Cape Canaveral generating units. (EXH 2 Bates Stamp 00000448) Any future recovery of costs for the Cape Canaveral conversions should take into account the retirement of the existing units.

Staff analyzed the proposed WCEC 3 and conversions of the Cape Canaveral and Riviera units as a single package. Therefore, the same financial, cost estimate, and forecast assumptions used in Issue 3 were used in this analysis and is discussed fully in Issue 3. Staff believes FPL's assumptions are reasonable.

In conclusion, staff believes that the cost information presented in the record demonstrates that the construction of WCEC 3 and the conversions of the Cape Canaveral and Riviera units will not only provide adequate electricity, but also ensure the most reasonable costs to ratepayers.

Date: August 7, 2008

**Issue 20:** Is there a need for the conversion of the Cape Canaveral plant, taking into account the need for fuel diversity and supply reliability as this criterion is used in Section 403.519, Florida Statutes?

**Recommendation:** Yes. While adding WCEC 3 in 2011 followed by the Riviera and Cape Canaveral conversions will not change FPL's generation mix, which will remain predominately natural gas, building additional coal or nuclear generation by 2013 is not feasible. The addition of WCEC 3 followed by the conversions will, however, lead to reductions in the amount of natural gas and fuel used. The addition of WCEC 3 and the conversions will also lead to an overall increase in system efficiency of 1.4 percent for WCEC 3 and 1.1 percent for the conversions for an overall system efficiency of 2.5 percent. (S. Brown, Garl, Lester)

**FPL's Position:** Yes. The conversions will improve FPL's system heat rate by about 1.1 percent compared to the Resource Plan without Conversions, reducing FPL's natural gas use by about 10.6 million MMBtu and fuel oil use by about 47.8 million MMBtu in 2013-2017.

**Staff Analysis:** As discussed in Issue 4, the conversions will improve FPL's overall fuel efficiency by approximately 1.1 percent. (TR 505, 530-531) The conversion projects are projected to result in a reduction of total oil and gas consumption by approximately 58.3 million MMBtu through 2017 compared to a plan that adds WCEC 3 in 2011 followed by a greenfield generating unit in 2014. (EXH 2 Bates Stamp 00000485) Compared to FPL's base plan, adding WCEC 3 in 2011 followed by the conversion projects is projected to reduce total oil and gas consumption by approximately 87.8 million MMBtu through 2017. (EXH 2 Bates Stamp 00000485)

Staff has analyzed the three projects together as one package. Therefore, the discussion on this issue regarding the need for fuel diversity and supply reliability is fully addressed in Issue 4.

In conclusion, staff believes that FPL has demonstrated that the addition of WCEC 3 and the conversions of the Cape Canaveral and Riviera plants will result in a reduction of dependence on natural gas and fuel oil, because it will reduce FPL's total oil and gas consumption by approximately 87.8 million MMBtu through 2017. (EXH 2 Bates Stamp 00000485) Building coal or nuclear generation by 2013 is not feasible because of the construction and permitting lead times for those types of generation. (TR 238)

**Issue 21:** Are there any renewable energy sources and technologies or conservation measures taken by or reasonably available to FPL which might mitigate the need for the conversion of the Cape Canaveral plant?

**Recommendation:** No. FPL's forecasted reliability need already accounts for all the identified cost-effective DSM and renewable generation. The amount of DSM and renewable generation included is the same as the amount the Commission approved as reasonable in Docket No. 070650-EI. (Webb)

**FPL's Position:** No. FPL's forecasted need already accounts for all the cost-effective DSM identified through 2014 and projected through 2017, and available renewable resources including the planned renewal of its existing firm renewable capacity purchase contracts and 126 MW of new renewable firm capacity.

**Staff Analysis:** As discussed in Issue 2, the decision to build WCEC 3 in advance of the identified reliability need is driven by unique economic opportunities and site specific circumstances. As discussed in Issue 5, the amount of DSM and renewable generation included is the same as the Commission approved as reasonable in Docket No. 070650-EI.

Staff has analyzed the three projects together as one package. Therefore, the discussion on this issue regarding the availability of renewable energy sources and technologies or conservation measures is fully addressed in Issue 5.

In conclusion, the record shows that cost-effective DSM and renewable generation cannot mitigate the need for these projects.

Date: August 7, 2008

**Issue 22:** Is the conversion of the Cape Canaveral plant the most cost-effective alternative available, as this criterion is used in Section 403.519, Florida Statutes?

**Recommendation:** Yes. FPL's economic analysis utilized a reasonable range of fuel and environmental costs. Together, the WCEC 3 and conversion projects will result in the greatest savings for FPL's ratepayers. (S. Brown, Garl)

**FPL's Position:** Yes. FPL's economic analysis shows that the Cape Canaveral Conversion in 2013 and the Riviera Conversion in 2014 will result in customer cost savings of about \$457 million CPVRR as compared to the Resource Plan without Conversions. Increased fuel costs will result in increased fuel cost savings.

**Staff Analysis:** As discussed in Issue 6, FPL's economic analyses utilized a reasonable range of fuel and environmental costs. As part of the discovery process, FPL provided an updated analysis based upon 2008 fuel and environmental costs estimates. (EXH 2 Bates Stamp 00000476-00000487) When compared to adding greenfield units in 2013 and 2014, the updated analyses indicate that adding WCEC 3 in 2011 followed by the conversion projects would result in a reduction of approximately 44,298 tons of SO<sub>2</sub> (9.8 percent); 31,188 tons of NO<sub>x</sub> (18.8 percent); and 8 million tons of CO<sub>2</sub> (1.6 percent) by the year 2017. (EXH 2 Bates Stamp 00000484) In addition, the updated analyses indicate that adding WCEC 3 in 2011 followed by the conversion projects would save approximately 87,849 million MMBtu of oil and natural gas over the same time period. (EXH 2 Bates Stamp 00000485) These environmental and fuel reduction benefits continue into the future and combine to result in an estimated savings to FPL's customers of approximately \$1.2 billion in present value savings by the year 2040. (TR 149, 536-537)

As previously stated, staff has analyzed the three projects together as one package. Therefore, the discussion on this issue regarding cost effectiveness is fully addressed in Issue 6.

In conclusion, compared to the base case and WCEC 3 without conversions plans, the analyses show that the proposed WCEC 3 in 2011 with conversions is the most cost-effective alternative available to FPL and its ratepayers.

Date: August 7, 2008

**Issue 23:** Based on the resolution of the foregoing issues, should the Commission grant Florida Power & Light Company's petition to determine need for the conversion of the Cape Canaveral plant?

**Recommendation:** Yes. (S. Brown, Garl)

**FPL's Position:** Yes. The conversion will add reliable, efficient, and cost-effective capacity to FPL's system. When combined, the proposed conversions will result in an estimated \$457 million CPVRR of savings, a reduction in fossil fuel use, and a reduction in system cumulative CO<sub>2</sub> emissions of more than 15.7 million tons through 2040.

**Staff Analysis:** Staff believes the evidence in the foregoing issues demonstrates that, based on maintaining a 20 percent reserve margin planning criterion, FPL will have a reliability need for additional capacity in the summer of 2013. If granted approval to build WCEC 3 in 2011, FPL can remove the Cape Canaveral and Riviera plants from operation in 2010. FPL can then convert the steam electric generating units, which have been in operation since the 1960s, to high-efficiency combined cycle power plants, and return them to operation in 2013 and 2014.

As discussed in Issue 6, WCEC 3 is projected to be approximately \$735 million less expensive than FPL's base case expansion plan. The acceleration of WCEC 3 allows for the conversion of Cape Canaveral and Riviera plants, which are projected to increase savings to FPL ratepayers of approximately \$1.2 billion. (TR 58-59, 149)

In conclusion, if the Commission approves staff's recommendation on the foregoing issues, staff recommends that the Commission grant FPL's petition to determine need for WCEC 3 and the conversions of the Cape Canaveral and Riviera plants.



Date: August 7, 2008

**Issue 24:** If an affirmative determination of need is granted, should FPL be required to annually report the budgeted and actual cost compared to the estimated total in-service cost of the proposed Cape Canaveral Conversion?

**Recommendation:** Yes. Since the construction of WCEC 3 and the conversion projections are interrelated, FPL should annually report to the Director of the Division of Economic Regulation the budgeted and actual cost compared to the estimated total in-service cost of the proposed WCEC 3, Cape Canaveral Conversion, and Riviera Conversion relied upon in these proceedings. Costs in addition to those identified in this need determination proceeding should not be recoverable unless FPL can demonstrate that such costs were prudently incurred and due to extraordinary circumstances. (S. Brown, Garl)

**FPL's Position:** FPL will annually report this information. Also, if FPL decides to utilize a different combustion turbine design from the one analyzed in its testimony for the two conversion projects, FPL will report to the Commission the comparative cost advantage of the alternate design chosen.

**Staff Analysis:** FPL has confirmed that it will report, on an annual basis, budgeted and actual costs compared to the estimated total in-service cost of the proposed WCEC 3, Cape Canaveral, and Riviera units. The report should be submitted to the Director of the Division of Economic Regulation. In addition, FPL also agreed that if a different combustion turbine design from the one presented in these proceedings is chosen, FPL will report to the Commission the comparative cost advantage of the alternate design chosen. (FPL BR 26-27, TR 155) Such a selection would only be made if the projected cost to FPL's customers would be lower as a result of the use of an alternate design. (FPL BR 26-27, TR 155)

**Issue 25:** Should these three dockets be closed?

**Recommendation:** Yes. Upon issuance of an order granting FPL's petitions to determine the need for WCEC 3, the Cape Canaveral Conversion, and the Riviera Conversion, each of these three dockets should be closed when the time for filing an appeal has run. (M. Brown, Klancke)

**FPL's Position:** Yes. Upon issuance of an order granting FPL's petitions to determine the need for WCEC 3, the Cape Canaveral Conversion, and the Riviera Conversion, each of these three dockets should be closed.

**Staff Analysis:** Upon issuance of an order granting FPL's petitions to determine the need for WCEC 3, the Cape Canaveral Conversion, and the Riviera Conversion, each of these three dockets should be closed when the time for filing an appeal has run.