BEFORE THE
FLORIDA PUBLIC SERVICE COMMISSION

In the Matter of: DOCKET NO. 090009-EI

NUCLEAR COST RECOVERY CLAUSE.
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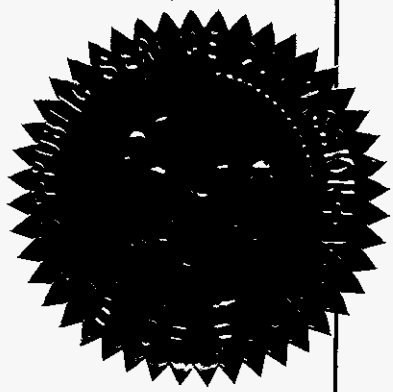

VOLUME 4

Pages 655 through 852

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PROCEEDINGS:	HEARING
COMMISSIONERS PARTICIPATING:	CHAIRMAN MATTHEW M. CARTER, II COMMISSIONER LISA POLAK EDGAR COMMISSIONER KATRINA J. McMURRIAN COMMISSIONER NANCY ARGENZIANO COMMISSIONER NATHAN A. SKOP
DATE:	Tuesday, September 8, 2009
TIME:	Commenced at 9:30 a.m.
PLACE:	Betty Easley Conference Center Room 148 4075 Esplanade Way Tallahassee, Florida
REPORTED BY:	JANE FAUROT, RPR Official FPSC Reporter (850) 413-6732
PARTICIPATING:	(As heretofore noted.)

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I N D E X

WITNESSES

EXHIBITS

NUMBER:		ID.	ADMTD.
71-72			658
73-75			679
137	Earnings Conference Call, FPL	750	762
138	Strategic Decisions Conference 2009	751	762
76-77			761
78-80			851

PROCEEDINGS

(Transcript follows in sequence from Volume 3.)

CROSS EXAMINATION

BY MR. McGLOTHLIN:

Q. If you will turn to Page 10 of your rebuttal testimony. At Line 21, you say FPL understands that EPC contracts that are currently being offered for new nuclear generation provide little benefit in terms of cost control or risk management. And turning to Page 11, at Line 18, you say, FPL understands that some U.S. utilities using the AP 1000 design have entered into contracts with the consortium that provide for consolidated engineering procurement and construction, but contain scope, pricing, scheduling, and terms that make them significantly different from the EPC contracts that Witness Jacobs describes.

How many of the EPC contracts between the Shaw-Westinghouse consortium and other utilities have you personally reviewed, Mr. Scroggs?

A. I have only reviewed that, and that is just publicly available through the state cost-recovery cases in those issues.

Q. And would you suspect that the publicly available versions do not contain all the details and

terms and conditions of the actual EPC contract?

A. That is correct. It is an understanding based on FPL's own knowledge and our negotiations with Westinghouse-Shaw and what we can see reflected in the publicly available portions of other owners who have entered into EPC agreements.

Q. Would you expect that Westinghouse-Shaw and the contracting utilities will probably guard the details of those EPC contracts as confidential?

A. Yes.

Q. In fact, FPL would similarly guard any such contract as confidential, would it not?

A. Yes, sir.

Q. So this understanding is based upon a review of publicly available versions that have been -- that have been shielded in terms of disclosing those terms that the parties consider sensitive?

A. That is correct.

MR. McGLOTHLIN: May I have a moment?

CHAIRMAN CARTER: Absolutely.

MR. McGLOTHLIN: That's all I have.

CHAIRMAN CARTER: Thank you, Mr. McGlothlin. Mr. Davis.

MR. DAVIS: Thank you, Mr. Chair.

CROSS EXAMINATION

BY MR. DAVIS:

Q. Mr. Scroggs, are you the appropriate person that keeps track of the financial condition at FPL as regards the Turkey Point 6 and 7 project?

A. I am responsible for the budgeting and financial reporting for the project, if that is your question, sir.

Q. Well, and one of the questions I have is FPL has acknowledged that there are factors that effect the financial capability of the corporation when it comes to the Turkey Point project, and those include general economic conditions, financial markets, rating agency and investor views, the regulatory environment in Florida, and predictable and consistent application of the nuclear cost-recovery rule, the support for nuclear construction on a national level, national energy policy on carbon emissions, and the experience of other companies who choose to construct new nuclear plants prior to Turkey Point 6 and 7.

Are those factors that you consider in terms of the financial capability of FPL to actually deliver Turkey Point 6 and 7?

A. I am part of the project management team that considers those in our project management decisions and the pace and risk that we see out there for the project,

but not an economic expert or a rating agency expert in any of those specific categories.

Q. You rely on the rating agencies, however, don't you, in terms of the ability to obtain capital?

A. Florida Power and Light Corporation certainly relies on the rating agencies for access to capital markets, yes, sir.

Q. And FPL has cited in an interrogatory answer the Moody's article that I believe may have been referred to before from June 2009, is that right?

A. I would accept, subject to check, that that is true.

MR. DAVIS: Mr. Chair, if I may approach.

CHAIRMAN CARTER: You may approach.

MR. DAVIS: This is a previously admitted Exhibit AG-3 on the list -- I'm sorry, it was AG-3 on her list. Let me tell you what that is. That would be Exhibit 63.

CHAIRMAN CARTER: Okay. You may approach.

BY MR. DAVIS:

Q. So, Mr. Scroggs, I have shown you the Moody's article. You are familiar with that, are you not?

A. I am.

Q. And among other things, the title of it is New Nuclear Generation Ratings Pressure Increasing from June

of 2009, and is this -- there is a mention in the interrogatory answer about the lowering of the rating for SCANA. That is part of this article, is it not? You are familiar with that?

A. I am familiar with that, yes, sir.

Q. And what is SCANA?

A. SCANA is the operating company for South Carolina Electric and Gas. Excuse me, holding company.

Q. And they are attempting to build an AP 1000, is that correct?

A. That is correct.

Q. And in this article, Moody's states that we view new nuclear generation plans as a bet the farm endeavor for most companies due to the size of the investment and length of time needed to build a nuclear power facility. Do you know the size of FPL as related to SCANA, for instance?

A. Yes. I believe we are larger in market capitalization.

Q. Okay. Now, during the construction of the nuclear plants that FPL constructed in the time period '72 to '84, FPL's rating was reduced, was it not?

A. I don't have that information.

Q. It is in the article.

A. Okay.

Q. Subject to check, would you agree with that?

A. Subject to check, yes.

Q. And that was with Turkey Point 1 and 2 and the St. Lucie Units, as well. That is what was being constructed during that time frame, right?

A. That is correct.

Q. Now, have you looked at what would happen to the project schedule and/or the project costs as a result of the credit tightening or downrating of FPL with its credit ratings?

A. Yes, sir, we have. As the Commission well knows, our access to the capital markets is very critical to our ability to deliver to our customers. A higher rate of interest on capital that as a result of the downgrade would go directly to the costs the customers would pay. It is a significant portion of the overall project costs.

Q. And where is the tightening of the credit markets built into your economic analysis for these reactors?

A. We have an assumption on escalation and a regulated rate of return that defines our allowance for funds used during construction. Our analysis uses those -- what our history of escalation has been in terms of interest uses what is the approved AFUDC rate

for construction.

Q. So, in other words, there is no contingency built into your economic analysis for a downgrading of your credit rating or a further tightening of financial markets?

A. Not explicitly.

Q. Turning your attention to the schedule, you have stated in your rebuttal testimony -- and this is Page 22 at Line 7, that you disagree with Mr. Gundersen's concerns -- I'm sorry, let me back up. You agree with his concerns, but you disagree with the implications raised by Mr. Gundersen of the concerns for the delays in the schedule. Is that fair to say?

A. Sorry, if you could rephrase.

Q. I'll try to do that. If I read your testimony correctly, when you talk about Mr. Gundersen's testimony, you say that you have taken into account or that you consider as you prepare your annual feasibility analysis the issues that he raised in his testimony, is that right?

A. Yes, sir.

Q. And yet you come to a different conclusion about whether your schedule is going to slip, is that right?

A. I think what we have said is that -- you know,

we set an aggressive schedule. We have a number of items that we are looking at to guide us as to how we control the pace and the risk of exposure in the project. As we move forward, we collect information, we evaluate that information, and we use that information to tell us if we should accelerate the project, decelerate the project, or stay on schedule. So right now our schedule is 2018. We have postponed entering into an EP or EPC contract, and in doing so we have accepted that that increases the risk of being able to maintain the 2018 schedule. So it is a slightly different take on management and schedule. That is the status of our project at this point.

Q. Well, and you state on Line 7 on Page 22 of your rebuttal testimony, the project is approached with a sense of urgency so as to continuously identify all reasonable opportunities for schedule improvement and, therefore, deliver the earliest practical schedule. And then you contrast Mr. Gundersen's testimony as targeting a most likely schedule. Your sense of urgency, is it not delivering the most likely schedule?

A. Our sense of urgency is recognizing the significant benefits that new nuclear offers our customers; $93 billion in fuel savings over the first 40 years, reduction in CO2, those are valuable benefits to

our customers similar to the benefits that customers have received from the existing nuclear plants. We know and we expect that this Commission wants us to bring those benefits to bear as soon as reasonably possible with a sense of urgency, and that is how we approached the project because we feel that is our requirement and our duty to our customers.

Q. And is it not a duty to this Commission to present the most likely schedule so that the Commission can assess the long-term feasibility of this project?

A. I disagree with the implication that we haven't provided a reasonable schedule.

Q. I didn't say reasonable, I said most likely.

A. I don't know what most likely means in this context.

Q. Most likely is not from a sense of wishful thinking or urgency, it is most likely. It is something that the Commission can sit here and rule upon whether or not you have actually demonstrated long-term feasibility.

A. We have put forth a schedule that is achievable. We have done the studies and background analysis to validate that it is achievable. We have placed in our estimates for 2009 and 2010 the monies necessary to achieve that schedule. We are waiting on

clarification of certain things, such as our regulatory review schedule to understand if our previous assumptions are still going to be valid after the NRC issues its schedule for review and after the state process takes in the initial completeness review, and that we know that we can rely on those early stage assumptions and, therefore, later assumptions.

Q. And meanwhile you want the Commission to rely upon your urgent schedule instead of the most likely one, is that right?

A. We have provided a schedule with the same fidelity as all our scheduling activities. It's a proper schedule. It's backed up by the best engineering and analysis that we have available to us right now.

Q. Now, you had talked about the EP contract and that you hoped to achieve that by the end of this year, or achieve a decision by the end of this year. Mr. Reed discussed -- is it Doctor Reed or Mr. Reed? I can't remember. Mr. Reed discussed that the EP contract is a give and take between FPL and Westinghouse-Shaw as to who is going to accept certain risks. If Westinghouse-Shaw refuses to accept risks that you want them to, then your schedule slips even more, is that correct?

A. Depending on the results of our negotiation,

we are going to take the steps that are appropriate for our customers. If that means that we do not initiate an EP contract and that we defer the project some months or a year, then if that is the appropriate decision for our customers that is the decision we will make.

Q. And if Westinghouse-Shaw decides and you agree that you should be charged more for them accepting greater risk, then your $58 million that you projected for 2010 for the engineering design part of the EP contract won't be enough?

A. That is not necessarily correct. The early stage design activities are fairly well-defined. They are calendar driven, man-hour driven, and we believe that the 58 million that we have scheduled for 2010 would be sufficient to maintain the schedule for 2018.

Q. Isn't it typical with a major contract like an EP contract that there are contingency payments that you have to make in case you back out at some future date?

A. Some structures result in those types of payments, yes, sir.

Q. And that is an idea of risk being shifted from Westinghouse to FPL?

A. That would be the result.

Q. Okay. Are those being discussed in your negotiations with Westinghouse?

A. That would be the product of confidential negotiations.

MR. DAVIS: I believe that's all I have.

CHAIRMAN CARTER: Okay. Staff.

MR. YOUNG: No questions.

CHAIRMAN CARTER: Commissioners.

Redirect.

MR. ANDERSON: None. Thank you.

CHAIRMAN CARTER: Exhibits. I am showing 71 and 72, Mr. Anderson.

MR. ANDERSON: Yes, sir. We offer those.

CHAIRMAN CARTER: Are there any objections? Without objection, show it done.

(Exhibit Numbers 71 and 72 admitted into the record.)

CHAIRMAN CARTER: Anything further for this witness? Thank you. Have a nice day.

Call your next witness.

MR. ANDERSON: May Mr. Scroggs be excused?

CHAIRMAN CARTER: Yes, sir. You are excused.

MR. ANDERSON: Thank you.

CHAIRMAN CARTER: That was direct and rebuttal for you, so have a nice day.

MR. ANDERSON: FPL calls Mr. Kundalkar.

CHAIRMAN CARTER: Okay. You may proceed, Mr.

Anderson.

MR. ANDERSON: Thank you.

RAJIV S. KUNDALKAR

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

DIRECT EXAMINATION

BY MR. ANDERSON:

Q. You were sworn and testified earlier today, Mr. Kundalkar?

A. Yes, that is correct.

Q. Just remind us of your name, by whom you are employed, and your position?

A. My name is Rajiv S. Kundalkar. I am employed with Florida Power and Light Company. I'm Vice-President in the Nuclear Division for Organizational Support, and I work at 700 Universe Boulevard, Juno Beach, Florida.

Q. Have you prepared and caused to be filed 12 pages of prefiled rebuttal testimony in this proceeding on August 10, 2009?

A. Yes, I did.

Q. Were there any errata to your testimony?

A. No, I do not.

Q. Did you have any further changes for

revisions?

A. No, I do not.

Q. If I asked you the same questions contained in your prefiled rebuttal testimony, would your answers be the same?

A. Yes, they would be.

MR. ANDERSON: FPL asks that the prefiled rebuttal testimony be inserted into the record as though read.

CHAIRMAN CARTER: The prefiled testimony of the witness will be inserted into the record as though read.

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

FLORIDA POWER & LIGHT COMPANY

REBUTTAL TESTIMONY OF RAJIV S. KUNDALKAR

DOCKET NO. 090009-EI

August 10, 2009

Q. Please state your name and business address.

A. My name is Rajiv S. Kundalkar and my business address is 700 Universe Blvd., Juno Beach, FL 33408

Q. Have you previously provided testimony in this docket?

A. Yes.

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

A. Yes. I am sponsoring the following exhibits that are attached to my rebuttal testimony:

Exhibit RSK-10, Nuclear Policy 703, Long Range Plan

Exhibit RSK-11, Nuclear Plant Overview

Exhibit RSK-12, Turkey Point Unit 3 Overview

Q. What is the purpose of your rebuttal testimony?

A. My rebuttal testimony addresses the direct testimony provided by William R. Jacobs on behalf of the Office of Public Counsel (OPC).

Q. Please summarize your testimony.

A. As outlined in my direct testimony and detailed below, FPL employs a rigorous, in-depth engineering-based process to ensure that only costs that are "separate and apart" from those that would have been incurred absent the

Extended Power Uprate (EPU) project have been included in determining the amount of FPL's Nuclear Cost Recovery Clause (NCRC) request for the EPU project.

Without discussing or criticizing any specific aspect of FPL's extensive, careful management controls and processes that support FPL's "separate and apart" determination, Witness Jacobs simply repeats the same claim he made in last year's NCRC case -- that the only way to satisfy the "separate and apart" standard is to conduct a time consuming and speculative study forecasting the performance of each and every part of the nuclear plant that would or would not have had to be changed or replaced in the future if, hypothetically, the EPU project did not occur. As explained in my testimony, this approach where FPL is to somehow determine the future component-by-component performance of the Turkey Point and St. Lucie nuclear plants, absent the uprates, is not reasonable and should be rejected.

In addition, even assuming that (i) such a speculative study as proposed by Witness Jacobs was performed; and (ii) it were hypothetically to show that one or another component would have needed to be replaced over the next 20 years absent the EPU project, the resulting accounting most likely would result in increased, not decreased, costs for FPL's customers.

The Commission may be assured that by accepting FPL's carefully designed and executed "separate and apart" process that the carrying costs for only the correct "separate and apart" work is included in FPL's NCRC request. Accordingly, FPL's analysis and its results should be accepted by the Commission for NCRC purposes, and Witness Jacobs's claim should be rejected.

Q. Witness Jacobs asserts on page 10 of his testimony that FPL has "steadfastly refused to conduct the necessary study to confirm that the uprate costs for which it is requesting recovery are separate and apart from nuclear costs that would have been necessary to provide safe and reliable service had there been no uprate project." Do you agree?

A. No. Witness Jacobs's claim that FPL has failed to conduct necessary analyses to meet the requirements of the Commission's Rule 25-6.0423 and contemplated by the stipulation in last year's NCRC case is incorrect.

The facts are absolutely to the contrary of Witness Jacobs's assertion. In fact, FPL's entire engineering, analytical and accounting approach to the uprate project is aimed at ensuring that only appropriate uprate costs are incurred and included for recovery in its NCRC request.

Q. Please describe how FPL's engineering, analytical and accounting approach to the uprate project provides assurance that only appropriate "separate and apart" costs are included in the determination of FPL's NCRC request.

A. FPL's "separate and apart" analysis focuses on (i) determining the scope of modifications required for the uprate conditions through detailed engineering analyses; (ii) reviewing historical nuclear division plans for plant expenditures to validate that none of the modifications necessary for the EPU project were included in prior plans; (iii) reviewing Nuclear Regulatory Commission (NRC) license renewal commitments to validate that none of the modifications necessary for the uprate conditions were included in FPL's existing license renewal commitments; (iv) establishing a cross-functional review team including engineering, accounting, business operations, and others to review uprate activities and confirm these activities are separate and apart from nuclear costs that would have been necessary to provide safe and reliable service had there been no uprate project; and (v) the careful process of recording costs and compiling its Nuclear Filing Requirements, and the many processes and procedures attendant thereto.

Q. Please elaborate on the engineering process FPL uses to ensure that only "separate and apart" expenditures are included.

FPL began with a detailed, engineering-based scoping study to outline the activities, replacements and modifications necessary for the uprates, including "benchmark" studies of other similar utilities that have performed power uprates.

After these studies, initial evaluations of the activities planned for the uprates were performed to better define the scope of upgrades needed. This phase was followed by the detailed engineering phase currently in progress.

The detailed engineering phase is the most intense evaluation phase to define the optimum scope of upgrades needed and demonstrate the capability of the plant to be licensed and operated safely and efficiently at the uprated conditions. FPL continues to evaluate and optimize the scope of activities that are needed to support the power uprate under this phase. In this phase, FPL may identify new activities that are needed to support the power uprate conditions, such as equipment modifications, removals, and installations not previously identified. Other scope changes could include the elimination of initially identified activities.

The fact that FPL continues at every stage to scrutinize the scope of necessary activities exemplifies FPL's aggressive management of the project and desire to correctly identify only those costs that are necessary for the uprate and are separate and apart from nuclear costs that would have been necessary to provide safe and reliable service had there been no uprate project.

Q. Please describe the relevant document review conducted by FPL.

A. Based on the scope of modifications identified, to conduct the separate and apart analysis, FPL reviewed the Nuclear Division 2005 Business Plan to validate that modifications necessary for the uprate conditions were not

included in prior plans. The Nuclear Division 2005 Business Plan includes planned Operations & Maintenance (O&M) expenditures for 2005 – 2009 and the seven (7) year plan of capital expenditures for 2004 – 2010, which has been produced in discovery. FPL's Nuclear Policy 703, Long Range Plan, is attached as Exhibit RSK-10 and requires each site to maintain such properly approved 7 year plans for major outage and non-outage projects.

This review confirmed that the EPU Project will only modify, remove and/or replace equipment that is necessary to support the units in the power uprate conditions of increased temperatures, pressures, flow rates, and electrical output and there was no duplication of modifications between the EPU Project and the planned expenditures outlined in the Business Plan.

Similarly, to ensure the uprate activities are separate and apart from license renewal requirements, FPL completed a thorough examination of FPL's license renewal commitments. The license renewal process specifically included passive components that perform functions important to safety and specifically excludes active components. Active components are those with moving parts such as pumps, valves, generators, and turbines. The NRC relies on plants predictive maintenance and surveillance activities to determine required replacements of these active components. When the need for replacements is identified, they are included in the Business Plan described above. The license renewal process resulted in FPL's commitment to perform

numerous aging management programs on an ongoing basis. These license renewal aging management programs are just some of FPL's comprehensive equipment inspection, surveillance, and monitoring activities that ensure the plant is operated safely and reliably. FPL's review of the license renewal commitments confirmed that the EPU modifications are separate and apart from the license renewal commitments.

Q. Does Witness Jacobs criticize FPL's process of ensuring only separate and apart costs are included in its request?

A. No. Witness Jacobs has not identified any flaws with FPL's analyses or processes. His entire position is premised on the idea that his suggested 20 year study -- and only the suggested 20 year study -- would constitute an appropriate "separate and apart" analysis.

I disagree with his claims that such a study is either a viable solution or the only solution to determining what is "separate and apart." Moreover, such a study would be impractical and meaningless because it would rely on conjecture and speculation as opposed to FPL's actual engineering plans and information. FPL's approach is the more appropriate method for ensuring that only separate and apart costs are included in its request.

Q. Please explain why you think Witness Jacobs's study would be meaningless.

A. In order to understand why Witness Jacobs's claimed study is so speculative as to be meaningless for decision-making purposes, it is helpful to consider exactly what it is that Witness Jacobs is saying should be studied.

Witness Jacobs's study would require FPL to conduct a predictive study on a component by component basis to determine the future requirements for its four Florida nuclear units for the next 20 years – based on FPL's units as they would *hypothetically* exist if the EPU project did not take place. Witness Jacobs would then have FPL include in the NCRC process only those EPU project components whose counterparts in that hypothetical world did not require potential replacement. Thus it is clear that Witness Jacobs's process is speculative in nature, while FPL's processes are firmly rooted in actual engineering evaluations which take into account a reasonable time horizon that is consistent with FPL's actual operations and planning horizons for its units.

The operation of a nuclear power plant is a very complicated and dynamic process. In the typical nuclear plant there are approximately 135 systems made up of thousands of components that must function or have a high reliability that they will function when needed. Exhibit RSK-11 attached to my testimony represents an overview of a nuclear plant. Exhibit RSK-12, also attached to my testimony represents a detailed overview of Turkey Point Unit 3. There are rigorous monitoring, surveillance and overhaul programs that

have been implemented and are periodically updated, many through the combined experience of the industry, usually identified as "best industry practices" which help FPL maintain its facilities to provide safe, reliable electricity for our customers. This is also consistent with the NRC's regulatory framework.

To support these constantly improving processes, FPL maintains a 7 year forward looking plan of capital expenditures that is periodically updated to reflect current conditions and improving industry practices. It is not practical to expand this to the 20 year interval suggested by Witness Jacobs, or to a hypothetical case where the EPU project was not conducted, for the reasons described above.

FPL's long range planning practices are consistent with industry standards and "best practices" and regulatory requirements. It should also be noted that no predictive study of the type suggested by Witness Jacobs is required by the NRC for the license renewal of a nuclear plant for active components such as pumps, motors and valves. In contrast, the NRC relies on FPL's continued vigilance in performance monitoring, inspection and maintenance programs for early identification with appropriate actions to ensure each facility will operate as designed.

Moreover, FPL cannot predict with any certainty future actions which may be required by the NRC or future industry-wide events which may require improvements to equipment. For example, let's say someone needs to replace the water pump in his car with a larger pump because he is installing a bigger engine with greater horsepower. Can that person say that the original pump would have failed in the next 20 years? Can he say that the manufacturer of the original pump never would have recalled that piece of equipment and required installation of the new pump anyway? Of course not. However, what the car owner does know, is that this piece of equipment is needed now for the new larger engine to function properly.

Q. What would be the economic impact of Witness Jacobs's proposal on FPL's customers?

A. Witness Jacobs's approach would increase costs to customers. First, the cost of Witness Jacobs's study itself would increase project costs for customers. Second, any capital expenditures moved out of the clause would simply be moved into a Construction Work in Progress account, where they would accrue Allowance for Funds Used During Construction (AFUDC) until the uprated units enter commercial operation, resulting in higher total costs for recovery in rates. Accordingly, even assuming Witness Jacobs's approach could be used and applied, and even if certain costs were identified as candidates for removal from clause recovery, the shift in accounting for those costs would increase, not decrease, costs for FPL's customers.

Q. Please summarize your points concerning why Witness Jacobs's claim that only a 20 year predictive study of FPL's plants absent the EPU project would satisfy the "separate and apart" requirement.

A. A 20 year forecast of hypothetical plant operations and capital expenditure absent the uprates is not feasible or useful for the NCRC process, would be unduly speculative, and would clearly result in increased costs for the uprate project and for FPL's customers. Therefore, Witness Jacobs's claim that FPL perform his claimed 20 year predictive study should be rejected.

Q. Please comment on Witness Jacobs's assertion on page 10 that FPL has been uncooperative in resolving this issue and has not acted in the spirit of the stipulation in Docket No. 080009-EI.

A. FPL has been cooperative and transparent with respect to this issue, and has fully complied with Rule 25-6.0423 and the separate and apart stipulation approved by the FPSC. For example, FPL participated in a highly cooperative manner in the Commission Staff "lessons learned" workshops focused on making improvements to the filing process and information to be provided in the NCRC process, all of which FPL has met.

In addition, specifically with respect to the "separate and apart" issue, Staff during its "lessons learned" workshops requested that FPL provide specific information and examples of "separate and apart" components, in order to foster the parties' understanding of one another's positions, which FPL prepared and sent to all parties including OPC. Most significantly, as

described in this rebuttal and my direct testimony, FPL has structured its business processes to provide complete assurance to the Commission, OPC, and others that only those costs necessary for the uprate are accounted for with respect to the NCRC.

My March 2009 testimony includes Exhibit RSK-5, which is a listing of uprate activities required for the uprate project and explanations of the need for each activity. My March and May 2009 testimonies also present a detailed explanation of the cross-functional review team and the suite of controls and processes utilized by the project team to ensure only appropriate costs are incurred and reflected in the NCRC.

Thus, FPL has also provided information to OPC through its testimony and discovery to explain its separate and apart approach and show why this approach is analytically rigorous, comprehensive, and reliable for a determination on whether costs are in fact "separate and apart" from other nuclear costs.

Q. Does this conclude your testimony?

A. Yes.

BY MR. ANDERSON:

Q. You sponsored three exhibits to your rebuttal testimony?

A. Yes, I did.

Q. RSK-10, 11, and 12?

A. That is correct.

MR. ANDERSON: Chairman Carter, these have been previously identified as 73 to 75 on Staff's Comprehensive Exhibit List.

CHAIRMAN CARTER: For the record, 73 through 75.

BY MR. ANDERSON:

Q. Have you prepared a summary of your rebuttal testimony?

A. Yes, I have.

Q. Please provide it at this time.

A. Good afternoon, Chairman Carter and Commissioners. My rebuttal testimony responds to the criticism of FPL's uprate project made by OPC Witness Jacobs and explains how FPL is in full compliance with what is referred to as separate and apart requirement.

FPL's entire engineering and electrical and accounting approach to the uprate project is aimed at ensuring that only appropriate uprate costs are incurred and included for recovery. This is based on FPL's

systematic analysis that is made up of four parts.

First, FPL determined the scope of modifications required through detailed engineering analysis for the uprate conditions at high reactor power with corresponding high feed water flows and high steam flows required to generate greater electric output.

Second, FPL reviewed the nuclear division's long range plans which are required for long-term reliable operation without uprates to validate that none of these modifications necessary for the uprates were included in these prior long-range plans.

Third, FPL reviewed the Nuclear Regulatory Commission's license renewal commitments associated with 20 years of extended plant license to confirm that none of the modifications necessary for the uprate conditions were included in FPL's existing license renewal commitments.

And lastly, FPL established an independent cross functional review team to review uprate activities to help ensure that these activities are separate and apart from nuclear costs that would have been necessary to provide safe and reliable service had there been no uprate project.

Based on the results of these reviews and analyses, the applicable costs are then recorded and

nuclear filing requirements are compiled. In contrast, Witness Jacobs' study would require FPL to conduct a speculative study on a component-by-component basis to determine the future requirements of its four nuclear units for the next 20 years or so based on FPL's units as they would hypothetically exist if the uprate project did not take place, and then have FPL include in the nuclear cost-recovery clause process only those components whose counterparts in the hypothetical study did not require potential replacements.

The proposed study is unnecessarily speculative in nature and needlessly overlooks the fact that FPL's processes are firmly rooted in evaluations of actual engineering data and are based on performance monitoring and predicted maintenance of equipment. FPL's approach is consistent with the best industry practices, while Witness Jacobs' approach is not.

In conclusion, FPL is in full compliance with Commission orders and utilizes in-depth processes to ensure that only equipment and modifications needed to support the uprate conditions are included in the nuclear cost-recovery clause.

And this concludes my summary, Chairman Carter.

CHAIRMAN CARTER: Thank you.

MR. ANDERSON: Mr. Kundalkar is available for cross-examination.

CHAIRMAN CARTER: Mr. McGlothlin, you're recognized.

CROSS EXAMINATION

BY MR. McGLOTHLIN:

Q. Is it Kundalkar? Am I close?

A. That's pretty close.

Q. All right. Mr. Kundalkar, I have several questions for you.

A. Please.

Q. I am looking at Page 6 of your rebuttal testimony, Lines 14 and 15. Now, one of the items to which you point in your testimony is the NRC's license renewal requirements, is that correct?

A. That is correct.

Q. Isn't it true that the NRC requirements for license renewal generally cover only the nuclear safety related components of a nuclear project?

A. They include safety related components and many other things. They include nonsafety related components if they effect the safety -- function of the safety-related components, and there are other five categories; fire protection, station blackout, and two other scenarios. So it is much broader than just safety

related components.

Q. Well, there is safety related with respect to radiological safety and then there is safety related operational.

A. That is correct, yes.

Q. And would you agree that all of the things that you just mentioned refer to the broader definition of safety related?

A. That is correct, yes.

Q. Is it true, then, that the NRC requirements for license renewal would not cover main transformers?

A. They do not cover main transformers.

Q. Is it true that the license renewal process would not cover feedwater heaters?

A. That is correct.

Q. And there are other items that the license renewal process would not cover, correct?

A. That is correct.

Q. On the same page, please refer to Lines 2 and 3. In the course of your testimony you refer to a plan of capital expenditures. Is it true that the capital expenditure plan to which you refer and the one in which, that FPL conducts is a seven-year horizon?

A. Yes, that is correct.

Q. Now refer to Page 10, Lines 21 through 22. In

this portion of your testimony you describe what would happen to any uprate related costs that are excluded from clause recovery, do you not?

A. Yes, I do.

Q. Would you agree with me that it is potentially possible that within the universe of all costs associated with completing the uprate project there may be some that don't qualify for recovery through the nuclear cost-recovery process?

A. Can you elaborate on your question, again?

Q. Yes. And it's a hypothetical. Would you agree with me that with respect to all the costs incurred to complete the uprate project there may be some that don't qualify for recovery through the nuclear cost-recovery clause?

A. I think through the uprate project, if all -- in our assessment all the components would qualify for nuclear cost-recovery process based on the approach and assessment we have completed.

Q. Well, I understand that is the company's position, but if the Commission -- well, first, would you agree with me that there are criteria that govern whether costs go through the clause or whether they are base rate related?

A. Yes, I agree with that.

Q. And if the Commission were to determine that certain costs are ineligible for the clause, you are not suggesting that the Commission permit the utility to flow those through the clause anyway, are you, sir?

A. No, I'm not.

MR. McGLOTHLIN: That's all the questions I have.

CHAIRMAN CARTER: Thank you, Mr. McGlothlin. Mr. Davis.

MR. DAVIS: I have none. Thanks.

CHAIRMAN CARTER: Staff?

MR. YOUNG: No questions.

CHAIRMAN CARTER: Commissioners. Redirect.

MR. ANDERSON: Let me check for just a second.

CHAIRMAN CARTER: Okay.

MR. ANDERSON: None; thanks.

CHAIRMAN CARTER: Exhibits.

MR. ANDERSON: FPL offers 73 to 75.

CHAIRMAN CARTER: Are there any objections? Without objection, show it done.

(Exhibit Number 73 through 75 admitted into the record.)

CHAIRMAN CARTER: This completes it for this witness for both direct and rebuttal, is that correct?

MR. ANDERSON: Yes, sir, that's right.

CHAIRMAN CARTER: Thank you, sir, and have yourself a great evening.

THE WITNESS: Thank you.

CHAIRMAN CARTER: Call your next witness.

MS. CANO: FPL calls Doctor Steven Sim.

CHAIRMAN CARTER: You may proceed.

STEVEN R. SIM

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

DIRECT EXAMINATION

BY MS. CANO:

Q. Hello, again, Doctor Sim.

A. Hello, again.

Q. You were previously sworn, correct?

A. That is correct.

Q. Would you please restate your name, business address, and position?

A. Steve Sim, address is 9250 West Flagler Street, Miami, Florida.

Q. Did you prepare and cause to be filed 51 pages of prefiled rebuttal testimony in this proceeding?

A. Yes.

Q. Did you also prepare and cause to be filed an errata to that testimony?

A. That is correct.

Q. Do you have any other changes or revisions to your prefiled rebuttal testimony?

A. Yes, I do on one page. On Page 21 on Lines 18 and 20, I make reference to the year 2008. That should read on both lines 2007.

Q. Thank you. With those changes and with the errata, if I were to ask you the same questions contained in your prefiled rebuttal testimony today, would your answers be the same?

A. Yes, they would.

MS. CANO: Chairman Carter, I ask that the prefiled rebuttal testimony of Doctor Sim be inserted into the record as though read.

CHAIRMAN CARTER: The prefiled testimony of the witness will be inserted into the record as though read.

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

FLORIDA POWER & LIGHT COMPANY

REBUTTAL TESTIMONY OF DR. STEVEN R. SIM

DOCKET NO. 090009 - EI

August 10, 2009

Q. Please state your name and business address.

A. My name is Steven R. Sim and my business address is Florida Power & Light Company, 9250 West Flagler Street, Miami, Florida 33174.

Q. Have you previously submitted direct testimony in this proceeding?

A. Yes.

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

A. Yes. I am sponsoring the following exhibits that are attached to my rebuttal testimony:

Exhibit SRS-6: A Discussion Regarding Screening Curve Analyses from Steven R. Sim Testimony in Docket No. 080407 – EG

Exhibit SRS-7: An Alternate Calculation for Witness Cooper's "Diversity of Resources" Analysis

Q. What is the purpose of your rebuttal testimony?

A. The purpose of my rebuttal testimony is to discuss and respond to a number of statements and recommendations made by Southern Alliance for Clean Energy (SACE) Witness Cooper who has filed testimony in this docket.

Q. Please summarize your rebuttal testimony regarding SACE's witness Witness Cooper.

A. SACE's witness Witness Cooper declares there is a high level of uncertainty in the future. Then, when reviewing FPL's current economic analysis of Turkey Point 6 & 7, Witness Cooper - who does not appear to have any utility system planning or electric generation analytical background or experience - attempts to persuade the state of Florida to discontinue the on-going evaluation of this option which would provide emission-free, fossil fuel-free, capacity and energy at a 90% capacity factor for at least 40 years. He attempts to do so by choosing to suspend his belief in future uncertainty at carefully selected points. At those points he selects a specific futures forecast, or contentious pending legislation, as certain guideposts for how the future will unfold for the next 50 years. Finally, he offers no meaningful economic analysis that contradicts FPL's 2009 economic analyses, nor is he able to support his conclusion that other resources will improve FPL's system fuel diversity more than new nuclear capacity.

Therefore, Witness Cooper's recommendation that Florida stop its on-going evaluation of the new Turkey Point 6 & 7 nuclear units does not warrant serious consideration.

Q. Please provide an overview of your rebuttal testimony.

A. I have organized my comments regarding Witness Cooper's testimony into the following four categories for discussion:

I. How to Address Uncertainty;

II. FPL's Economic Analyses and the Assumptions Used;

III. Witness Cooper's "Economic Analyses";

IV. Witness Cooper's "Diversity Analysis"; and,

I. How to Address Uncertainty

Q. What do you believe the main points of Witness Cooper's testimony are?

A. I believe there are three main points to Witness Cooper's testimony: (i) he believes there is great deal of uncertainty in the future (and, for purposes of this testimony, I'll call this his 'core belief'); (ii) he believes that some key assumptions are currently not favorable for new nuclear units; and (iii) therefore, Florida should cease any further evaluation of, and expenditures on, new nuclear units.

Q. What is your reaction to these points?

A. I agree with his first point – there is great deal of uncertainty in the future. I'm sure that most people would share that view. However, I disagree with his second and third points.

Q. Please explain.

A. I don't agree with his second point, that a number of key assumptions are currently unfavorable for new nuclear units, for several reasons. First, Witness Cooper discusses only a few assumptions that are important in an evaluation of resource options. He does not meaningfully address a number of other assumptions, nor does he address various attributes of nuclear units, that are

important to any resource planning evaluation of new nuclear units. A partial list of these items that Witness Cooper does not discuss in a meaningful way would include, in no particular order: (i) the flexibility in both FPL's resource planning and operations that would be gained with 2,200 MW of additional baseload capacity; (ii) the increasing costs of securing firm transportation for natural gas to support new gas-fired generation as an alternative to nuclear generation; (iii) the significant reductions in system emissions, including carbon dioxide (CO_2), that results from having 2,200 MW that operates with zero emissions at a 90% capacity factor and will do so for at least 40 years; and, (iv) the significant improvements in system fuel diversity that will result from having 2,200 MW that uses no fossil fuel in operating at a 90% capacity factor for at least 40 years. I will address several of these items later in my testimony.

Second, Witness Cooper does not make a convincing case that even the few assumptions he discusses are unfavorable for continuing to evaluate new nuclear units. In discussing these assumptions, which he admits on one hand are uncertain, Witness Cooper repeatedly tries to reach a conclusion by using one specific forecast or projection as if it accurately reflected the future. In other words, when it suits his purpose – stopping further evaluation of new nuclear units in Florida – Witness Cooper is perfectly willing to suspend his 'core belief' ('the future is very uncertain'), and instead express a belief with certainty that a 2009 forecast, or projection (such as the potential passage of

pending legislation), accurately represents what the future conditions will be for 50 years or more.

This approach is not only inconsistent with his 'core belief,' it defies basic common sense and experience. We know that most forecasts, particularly those stretching decades out into the future, will almost certainly be wrong in a variety of ways. We just do not know the magnitudes and the directions of the errors. In addition, we also know that forecasts change constantly. Therefore, why should a decision of whether to continue an on-going evaluation of a promising resource option, such as new nuclear units, be based solely on one forecast or projection that is interpreted to be unfavorable at one point in time?

Finally, for the reasons just discussed, I disagree with Witness Cooper's third point – that Florida should cease its on-going evaluation of new nuclear units. I believe that the fact that the future is uncertain is a very strong argument to continue to evaluate new nuclear units, not to cease this evaluation now. The various attributes of new nuclear units, such as those mentioned above, represent tremendous potential benefits for FPL' customers in addition to potentially large economic benefits. It simply makes sense to continue to evaluate the option of the new nuclear units, Turkey Point 6 & 7.

In the following sections of this testimony, I'll focus on the specific assumptions in FPL's 2009 economic analyses that Witness Cooper is concerned about. I'll also discuss Witness Cooper's "economic analysis" and "diversity analysis" regarding new nuclear units and examine some of the exhibits he presented in his testimony.

II. FPL's Economic Analyses and the Assumptions Used

Q. Much of Witness Cooper's testimony regarding the feasibility of pursuing the option of new nuclear units appears to be based on his concerns regarding four assumptions used in FPL's economic analyses. What assumptions is he concerned about?

A. Starting on page 2, line 19, and continuing through to the top of page 5, of his testimony, Witness Cooper discusses concerns with four assumptions that were used in FPL's economic analyses supporting the 2007 need filing for Turkey Point 6 & 7. The four assumptions he has concerns about from this two year- old analysis presented in the need filing are (paraphrasing):

1. A high rate of demand growth in the load forecast;
2. A downplaying of the potential contributions of energy efficiency and renewables to meet the need for electricity;
3. High projected prices for fossil fuels and CO_2 compliance costs; and,
4. A low estimate for the cost of the new nuclear units.

Witness Cooper's concern is that the assumptions used in the 2007 need filing: *"have been called into question in the time since the evidence was filed in their* (FPL and Progress) *petitions for determination of need."* In other words, Witness Cooper has observed that a number of the assumptions used in the 2007 need filing have now changed.

Witness Cooper summarizes his position on page 4, lines 4 – 8: *"The evidence presented by the companies to the Commission does not take these factors fully into account and does not reflect the highly uncertain future that nuclear reactors face. If the Commission were to merely conclude that the changes in conditions make the future highly uncertain, that conclusion alone would argue strongly against continuing with these reactors."*

Q. What is your reaction to this?

A. Witness Cooper is merely stating the obvious: a number of assumptions or forecasts have certainly changed since 2007. Forecasts are always uncertain and forecasts will continue to change from month-to-month and from year-to-year. Forecasts for fuel costs, like many other commodities, change daily if not more frequently. And, as with all forecasts, no one knows the directions or the magnitudes of these changes.

Most importantly, FPL recognizes the uncertainty in any specific forecast – and the fact that these forecasts will continue to change – in its analytical

approach used in conducting economic analyses of the Turkey Point 6 & 7 units. Starting with the 2007 need filing, FPL has used 3 different fuel cost forecasts and 4 environmental compliance cost forecasts for several types of emissions (SO_2, NO_x, and CO_2) in its analyses. This allows a number of combinations of fuel and environmental compliance costs to serve as possible future scenarios with which to view the economics of Turkey Point 6 & 7. These scenarios provide a wide range of possible fuel and environmental compliance "futures" with which to address uncertainty.

Furthermore, FPL annually updates these projections of fuel costs and environmental compliance costs, along with a number of other assumptions such as the load forecast, for its economic analyses. Witness Cooper apparently fails to recognize that FPL is not relying on its 2007 analysis. Rather, FPL continues to analyze the feasibility of these units each year. In 2009, FPL's economic analyses utilized a number of updated assumptions for load, fuel costs, and environmental compliance costs.

The Commission also recognizes that uncertainty exists in forecasts utilized in economic analyses, and that many of these assumptions will change each year, when it required that an annual feasibility analysis for the new nuclear units be filed with the Commission.

Consequently, there appears to be no disagreement among Witness Cooper, the Commission, and FPL in regard to the fact that the future is uncertain or that assumptions used in economic analyses change.

However, as evidenced by Witness Cooper's testimony, there does appear to be disagreement at least between Witness Cooper and FPL regarding: (i) whether these assumptions will continue to change in the future (FPL believes they will continue to change, but Witness Cooper seems to believe that some selected current forecasted values will not change), and (ii) in what directions those assumptions will move. I'll return to these issues later in my testimony. I'll now turn my attention to the four assumptions that Witness Cooper is most concerned about.

Q. Would you please discuss the first assumption that Witness Cooper has concerns about: the load forecast that FPL used in its 2009 economic analyses?

A. Yes. The January 2009 load forecast used in FPL's 2009 economic analyses of both the nuclear uprates and Turkey Point 6 & 7 is an updated forecast. It is significantly different from the load forecasts used in prior nuclear feasibility analyses. The 2009 updated forecast shows a significant drop in projected load growth, particularly in the near-term. For example, as shown in Exhibit SRS – 1 in my direct testimony, the forecasted Summer peak load for the year 2020 dropped from 30,910 MW in the 2008 forecast to 27,715 MW in the 2009 forecast, for a drop of 3,195 MW.

However, Witness Cooper refers to projected load for the year 2017 in his testimony so I'll focus on that year. The projected decrease in Summer peak load for 2017 from the 2008 load forecast (28,621 MW) to the 2009 load forecast (25,401 MW) is similar, 3,220 MW. Therefore, for the discussion that follows, I'll assume that the drop in projected Summer peak load is approximately 3,200 MW.

Q. Witness Cooper asked on page 9, lines 21 – 22, of his testimony: *"Is this dramatic shift in demand fully reflected in the 2009 Economic Analysis?"*

A. I note that Witness Cooper's testimony did not answer his own question, so I will do so. The answer is yes. FPL fully accounted for the change in forecasted demand and for the accompanying changes in forecasted annual energy to be served. This same updated load forecast was used in analyzing both the new nuclear units and the combined cycle capacity to which the new nuclear units were compared.

Had he taken the time to examine Table ES.1 in the Executive Summary sections of FPL's 2008 and 2009 Site Plans, Witness Cooper would have learned how FPL's resource plans have changed due in large part to this decrease in forecasted load. I'll summarize those changes by discussing the major changes in FPL's resource plan from the 2008 Site Plan to the 2009 Site Plan. (A number of smaller changes, such as MW ratings to existing units, also occurred, but these changes were relatively minor.)

For the years 2009 through 2017 (the years addressed in both the 2008 and 2009 Site Plans), the major differences are:

- In the 2008 Site Plan, FPL projected the addition of 3 new greenfield combined cycle (CC) units, each with 1,219 MW (Summer) capacity, that would add approximately 3,660 MW of total capacity.
- In the 2009 Site Plan, FPL removed these 3 greenfield CC units and added the conversions/modernizations at its existing Cape Canaveral and Riviera sites. The addition of two new CC units (approximately 2,430 MW in total from the new units), and the removal of approximately 1,350 MW of existing generating unit capacity at those two existing sites as part of the conversion process, results in a net gain of approximately 1,080 MW (= 2,430 – 1,350) from these conversions.
- In addition, FPL's 2009 Site Plan shows the temporary removal of approximately 2,400 MW of existing generating unit capacity that will be placed into Inactive Reserve status in the first few years of the ten-year reporting period, and then returning to active status in the future as needed to meet reserve margin requirements. The 2009 Site Plan projected that about 1,600 MW of this capacity would be returned to active service by 2017. This results in a net reduction in active generating capacity by 2017 of 800 MW.

- Therefore, FPL's 2009 Site Plan shows a net capacity increase of approximately 280 MW (= 1,080 – 800) by 2017.
- Consequently, FPL's 2009 Site Plan, compared to the 2008 Site Plan, shows a decrease in new net capacity additions of approximately 3,380 MW (= 3,660 – 280) by 2017.

The decrease in FPL's forecasted load of approximately 3,200 MW equates to a decrease in the amount of new generation resources needed of about 3,840 MW due to the 20% reserve margin criterion. Thus FPL's projection of resource needs by 2017 dropped by approximately 3,840 MW. A comparison of the 2008 and 2009 Site Plans shows a reduction in planned new net capacity by 2017 of approximately 3,380 MW to address the reduction in projected resource needs. This is a clear indication that FPL has adjusted its resource plan to address the lower load forecast.

Q. Is the load forecast likely to change after 2009?

A. Yes. FPL's official load forecast is typically reviewed and revised from one year to another to reflect the best information available. Therefore, it is likely that new load forecasts will be developed each year. If so, those new load forecasts will be used in FPL's annual resource planning work, including the annual economic analyses of new nuclear capacity. However, what neither FPL nor Witness Cooper knows with certainty is what the magnitudes and directions of changes will be in future load forecasts compared to the 2009 forecast.

Q. Suppose that the new nuclear units are built and FPL's load in the future is actually smaller than is currently projected. Omitting any consideration of economics, would FPL's customers still benefit from having Turkey Point 6 & 7 on the system?

A. Yes. There would still continue to be numerous benefits to FPL's customers. Turkey Point 6 & 7 would add 2,200 MW of baseload capacity and energy that are projected to operate at projected capacity factors in the 90% range using no fossil fuel and operating with no air emissions. Furthermore, the units are projected to do this for at least 40 years. Economic considerations aside, this resource would bring at least the following benefits to the FPL system: (i) significant increases in system fuel diversity; (ii) significant decreases in system emissions, including CO_2; and (iii) significant additional flexibility for FPL's future resource planning and system operations.

Q. How would Turkey Point 6 & 7 result in significant additional flexibility for FPL's resource planning and system operations if the load was smaller than currently projected?

A. If future loads were to be smaller than currently projected at the time Turkey Point 6 & 7 come on-line, a number of options would open up for FPL. These options would become available because the large amount of capacity offered by Turkey Point 6 & 7, combined with lower load, would enable FPL to more easily meet its reserve margin requirements for the purpose of maintaining system reliability, thus freeing up possible courses of action. These potential courses of action include, but are not necessarily limited to, the following: (i)

taking additional existing units out-of-service and converting the sites with new, highly efficient generating units (as is being currently done at FPL's existing Cape Canaveral and Riviera sites), thus continuing to modernize FPL's fossil fueled generating fleet; (ii) taking additional older existing units out-of-service either temporarily (Inactive Reserve) or permanently (unit retirement); and (iii) having the potential for more time for both planned and unplanned maintenance outages for existing generating units if such action is desired to gain greater long-term reliability and operational cost savings.

On the other hand, if FPL's load is actually larger than currently projected, the benefits of Turkey Point 6 & 7 would likely be larger than the currently projected benefits shown in FPL's 2009 economic analyses.

Q. Would you please discuss the second assumption that Witness Cooper is concerned about, accounting for efficiency and renewables in its economic analyses?

A. Yes. Witness Cooper contends that FPL's economic analyses should account for larger contributions from energy efficiency and renewables. He bases this contention on two points (paraphrasing): (i) proposed federal legislation may direct utilities to move in the direction of more efficiency and renewables; and (ii) efficiency and renewables should be incorporated anyway once they are either 'understood' to be superior options, or once advancements reach the point where they will become superior options.

Q. What does Witness Cooper contend should be assumed regarding proposed federal legislation when conducting economic analyses of new nuclear units?

A. Witness Cooper discusses proposed federal legislation in various places in his testimony including beginning on page 15, line 22, through page 16, line 4: *"Q. Please describe the full suite of federal policies that affect the long-term feasibility of these nuclear reactors. A. On the supply-side, the legislation has a renewable energy standard that would require utilities to meet an increasing part of their load with renewables. Within a decade, they would be required to get 20% of their generation from renewables, with as much as 8 percent of that total coming from efficiency."* Witness Cooper contends that current economic analyses of new nuclear units should incorporate these aspects of the proposed legislation as if the proposed legislation were already established law. However, Witness Cooper chooses not to discuss how the currently proposed legislation addresses new nuclear units in the renewables section of the legislation. FPL Witness Reed does discuss the "nuclear neutral" aspect of the proposed legislation in his rebuttal testimony.

The proposed federal legislation that Witness Cooper discusses appears to be HR 2454 that very narrowly passed the U.S. House of Representatives a short while ago. This legislation, at least in the current form that barely passed one body of Congress, was not even proposed several months ago when FPL's economic analyses were conducted. More importantly, this legislation has not

yet passed the U.S. Senate, much less been signed into law. In other words, this legislation is still only proposed legislation.

Moreover, I would expect that if this legislation actually passes both houses of Congress, numerous changes in the legislation are likely, so that the final version may be significantly different than the version that narrowly passed the House. In addition, if some form of the legislation is passed and signed into law, it is likely that legal challenges will occur that could result in changes to the law itself and/or in changes to rules and regulations that seek to direct activities of utilities and other entities.

Witness Cooper expresses many times in his testimony that he believes that the future is uncertain. However, he contends that this proposed legislation – which has proven to be quite contentious - should be treated as a 'certainty' in regard to assumptions that are used today in economic analyses of resource options. His contention shows that he is willing to waive his core belief of great uncertainty when it suits him - when he believes it helps bolster an argument against continued evaluation of new nuclear units in Florida - and assume that a proposed legislative bill accurately reflects what the future will hold.

Q. Why does FPL include environmental compliance costs for CO_2 in its analyses if there is currently no law addressing these emissions?

A. There are two reasons for this. First, it has become increasingly likely over the last couple of years that some form of federal CO_2 regulation will occur. Second, despite Witness Cooper's statement on page 15, lines 2 -3 that: *"To my knowledge, the state of Florida has not put a price on carbon, nor is it contemplating doing so"*, the state of Florida has taken steps to develop a recommendation regarding CO_2 regulation.

Therefore, with the likely outcome of CO_2 regulation, FPL has included a range of environmental compliance costs for CO_2 in all of its resource planning work during the last few years to ensure that CO_2 compliance costs are addressed.

However, the details of how compliance would actually "work" have varied greatly in the numerous pieces of legislation that have been proposed or considered. For this reason, FPL believes it is premature to attempt to incorporate a wide variety of potential other impacts, such as those discussed by Witness Cooper, at this time in its resource planning analyses. If/when CO_2 compliance legislation is signed into law – and the many and varied facets of the law are then known – FPL will incorporate these facets into its resource planning work, including future economic analyses of new nuclear units. Until that time, FPL believes it is wise to use a basic approach of examining a variety of CO_2 compliance costs.

Q. You stated earlier that you believe Witness Cooper suggests that greater contributions from energy efficiency and renewables should have been accounted for in any case in FPL's economic analyses of new nuclear units. Would you please discuss?

A. Yes. On page 19, lines 9 – 11, Witness Cooper says the following about energy efficiency: *"For efficiency, the change in the terrain is largely a matter of increasing confidence that substantial increases in efficiency are achievable at relatively low cost."* Then, in regard to renewables, he states the following beginning on page 18, line 22, through page 19, line 2: *"...there are ways in which the alternative technologies are likely to receive an even larger boost. There are also many programs targeted at various technologies that are in earlier stages of development that may enjoy larger cost reductions as the science advances and the scale of production ramps up."* On line 5 of that same page, Witness Cooper points out which type of technologies he has in mind when he mentions the: *"...availability and cost of renewables..."*

In other words, Witness Cooper believes that efficiency and renewables might be viewed as being superior alternatives to new nuclear if: (i) people can be convinced that efficiency is economical; and (ii) there are technological breakthroughs for renewable energy options.

Q. What is your reaction?

A. In regard to the concept of having to convince people that efficiency is economical, this strikes me as a very strange concept. One can accurately

compare the economics of two resource options if one will simply ensure that all of the costs associated with each resource option are accounted for in the analyses. The only time this becomes a problem is if an incomplete, and therefore inaccurate, analytical approach is used in an attempt to show that someone's preferred option is better than would actually be the case if a complete and accurate analysis was conducted.

Witness Cooper bases his case regarding the economics of efficiency and renewables on such an incomplete analytical approach – a screening curve approach that only looks at levelized cents/kwh costs of resource options. With such an incomplete – and inaccurate - approach to evaluating the economics of resource options, it is no wonder that he perceives that there is a real problem with convincing people efficiency is the economic choice. (I will further discuss the problems inherent with a screening curve approach to analyzing resource options in section III of my testimony.)

Now, in regard to expecting, or hoping for, technological breakthroughs that may result in renewable options potentially becoming superior to new nuclear capacity, Witness Cooper is again choosing to drop his core belief of great uncertainty. He proposes that FPL should stop an on-going evaluation of one resource option – new nuclear units – with tremendous potential, based only on the hope that renewable technology development may produce a better option. Once again, Witness Cooper is willing to suspend his concerns about

uncertainty if he believes this will help him in his argument against continuing the evaluation of new nuclear units in Florida.

FPL is a very strong proponent of renewable energy, believes it has an important role to play in FPL's future plans and operations, and intends to pursue renewable energy options vigorously. However, because of the very view that Witness Cooper repeatedly claims to have – uncertainty regarding the future – FPL also strongly believes that the on-going evaluation of new nuclear units should continue. With tremendous uncertainty in the future, one should pursue all promising options.

Q. Returning to Witness Cooper's concerns regarding efficiency and renewables, does FPL's 2009 economic analysis for this docket incorporate efficiency and renewables?

A. Yes. One of the reasons that FPL's 2009 load forecast has dropped so much is that it accounts for an additional 895 MW of energy efficiency that is projected to result from updated federal appliance efficiency and lighting standards. In addition, the 2009 economic analysis includes a projection of all achievable, cost-effective FPL DSM that had been identified at the time the economic analysis was conducted.

Regarding renewable energy, the 2009 economic analysis included the impact of several new, large-scale renewable energy projects by FPL. These projects include: (i) the DeSoto Next Generation Solar Energy Center (a 25 MW

photovoltaic (PV) facility; (ii) the Space Coast Next Generation Solar Energy Center (a 10 MW PV facility); and (iii) the Martin Next Generation Solar Energy Center (a 75 MW solar thermal facility).

As FPL's resource planning work continues from year-to-year, updated assumptions for energy efficiency and renewables will be incorporated into FPL's economic analyses as appropriate.

Q. Would you please discuss the third assumption, or set of assumptions, that Witness Cooper is concerned about: projected costs for natural gas and CO_2 compliance cost?

A. Yes. Witness Cooper's basic position in this docket is that the projected costs for natural gas and environmental compliance costs for CO_2 that were used in FPL's 2009 economic analyses are too high.

He first refers to FPL's response to a Staff interrogatory (Interrogatory 45) asking for an explanation of why the economic advantage of nuclear compared to natural gas-fired combined cycle units has increased in the 2009 economic analysis compared to the ~~2008~~ 2007 analysis. FPL's response was that the primary reasons are higher projected natural gas costs and CO_2 compliance costs than were projected in ~~2008~~ 2007. Witness Cooper then discusses why he believes FPL's projected values for natural gas and CO_2 should have been lower.

Q. What does Witness Cooper offer in support of his view that FPL's projected natural gas prices are too high?

A. He offers the following statement on page 12, lines 15 – 17 in terms of 'qualitative' support: *"There is increasing optimism about natural gas resources. There are efficiency programs targeted at natural gas consumption in the climate change legislation moving through Congress, which may free up supply and put downward pressures on price."* In terms of 'quantitative' support, he offers the following Q & A exchange on page 13, lines 5 – 7: *"Q. Please provide empirical evidence to support your concerns about the natural gas projections employed by FPL. A. The evidence relies on futures prices."*

Q. What is your reaction to these qualitative and quantitative statements that Witness Cooper believes support his belief that future natural gas costs in Florida will be significantly lower than projected in FPL's 2009 economic analyses for this docket?

A. First, in regard to his qualitative statement, he again suspends his concern regarding uncertainty about the future and pins his case on the same proposed, contentious legislation which, if enacted, *"...may...put downward pressure on prices."* Suffice it to say that the pending legislation may not pass in its current form and, even if it did, it may not put downward pressure on gas prices.

Second, in regard to his quantitative statement that supposedly provides *"empirical evidence"* that natural gas prices will be lower in the future

(presumably for the 40-plus years starting in 2018 in which Turkey Point 6 & 7 will operate), he offers what appears to be a single natural gas futures price forecast of recent vintage. Witness Cooper ignores the fact that futures prices change constantly. By so doing, he once again suspends his concern about uncertainty regarding the future when it suits him. He chooses instead to attempt to make a case that this single futures price forecast is an accurate indicator of natural gas commodity prices for the next 50 years.

Third, Witness Cooper's discussion is solely about natural gas commodity prices. He does not address increases in projected firm gas transportation costs that have occurred since 2007. These fixed costs are separate from gas commodity prices in FPL's analyses, but are a substantial portion of annual total gas costs for a new gas-fired unit.

Witness Cooper may not recognize the significant contribution that firm gas transportation costs make in analyses involving combined cycle units. Even relatively small increases in firm gas transportation costs on a $/mmBTU basis will result in significant increased annual costs for combined cycle units. For example, a $0.10/mmBTU increase in firm gas transportation costs equates to an increase in annual costs of approximately $15,000,000 for the combined cycle capacity to which Turkey Point 6 & 7 is compared in the economic analyses. Therefore, increasing firm gas transportation costs, not

mentioned by Witness Cooper, clearly enhances the economic feasibility of new nuclear capacity compared to new gas-fired combined cycle capacity.

Q. Have others commented on projected natural gas commodity prices in Florida recently and what was their view?

A. Yes. In docket (Docket No. 090172-EI) regarding the EnergySecure natural gas pipeline, Witness Benjamin Schlessinger provided testimony on behalf of the Florida Gas Transmission Company (FGT). In his testimony, Witness Schlessinger states on page 7, lines 20 – 23: *"FPL may have severely understated future natural gas prices because depletion of gas resources and diversion of LNG supplies away to higher-paying markets in Europe and Asia – these kinds of factors may cause Henry Hub gas prices to rise in real dollar terms, plus more for inflation."*

The forecast that Witness Schlessinger is discussing is the same natural gas commodity price forecast that is used in the 'Medium Gas Cost' forecast in FPL's 2009 nuclear cost recovery docket. Although FPL does not agree with Witness Schlessigner's assertion, it is clear that Witness Schlessinger and Witness Cooper each look at the same FPL gas commodity price forecast and come to completely opposite conclusions about what actual future gas commodity prices will really be. I conclude that Witness Cooper's original statement that the future is very uncertain is correct, but also conclude that Witness Cooper's subsequent claim that his selected single futures market

forecast correctly predicts natural gas commodity prices for the next 50 years is less than convincing.

FPL believes that there is significant uncertainty regarding what future fuel costs will be and that this uncertainty is heightened by the unpredictability of future environmental compliance costs. Consequently, FPL's 2009 economic analyses for both the nuclear uprates and the Turkey Point 6 & 7 units continue to use a scenario approach in which 3 fuel cost forecasts and 4 environmental compliance costs forecasts are utilized. The intent is to recognize the uncertainty in both projections and to try to ensure that a wide variety of potential outcomes are represented in the analyses. And, as stated before, FPL updates its fuel cost forecasts each year and these updates are used in the nuclear economic analyses.

Q. In regard to projected CO_2 compliance costs, what does Witness Cooper have to say about the values used in FPL's 2009 economic analyses?

A. Starting on page 14, line 23, and continuing on to page 15, line 1, Witness Cooper makes the following statement: *"The companies have put a high price on carbon in their economic analyses."* He then explains that pending federal legislation, HR 2454, does: *"...not simply put a price on carbon directly. Rather, it establishes an elaborate scheme of allowances to emit carbon, which will indirectly set a price on carbon. Moreover, policies other than putting a price on carbon, particularly policies to promote efficiency and renewables, play a large role as well."*

Q. What is your reaction to these statements?

A. I have two reactions. My first reaction is in regard to Witness Cooper's contention that FPL should have incorporated the *"...an elaborate scheme of allowances..."*, in addition to *"... policies other than putting a price on carbon..."* from HR 2454 in FPL's economic analysis. This simply does not make sense. The current version of the proposed bill did not even exist when FPL performed its analyses. Furthermore, this bill is still only pending legislation, the legislation is quite contentious, and the details of the legislation are almost certain to continue to change if some version of the legislation is to become law.

Witness Cooper has once again decided to suspend his belief that the future is uncertain and assume that a bill currently pending, and almost certain to undergo changes if it does become law, accurately represents the future of CO_2 compliance costs.

If/when a bill that regulates CO_2 emissions is signed into law, then FPL will develop a strategy for complying with whatever *"...elaborate scheme of allowances..."* and other *"...policies..."* that the law requires. However, FPL does not believe that it is productive to attempt to include in its resource analyses numerous potential aspects of a myriad of competing bills (and a myriad of interpretations of each bill) when addressing prospective CO_2 compliance costs in its analyses. Such an approach may give one a false sense

of precision. However, this approach ignores the range of uncertainty that will continue to exist until legislation is signed into law and the accompanying implementing regulations are determined. Therefore, until these occur, it is far more productive to recognize the uncertainty that exists regarding CO_2 regulation and to address it by a wide range of CO_2 compliance costs.

Second, I note that Witness Cooper is providing testimony in this docket on behalf of SACE, and in the current DSM goals docket (Docket No. 080407 – EG), SACE is represented by other witnesses including Witness William Steinhurst.

SACE witness Cooper's contention in this docket that FPL's compliance costs for CO2 are too high contrasts strongly with SACE witness Steinhurst's testimony in the DSM goals docket. On page 22, lines 13 – 14, of Witness Steinhurst's testimony in the DSM goals docket, Witness Steinhurst makes the following comment regarding projected CO_2 compliance costs of FPL: *"I consider those values to be at the extreme low end of the reasonable range of estimates..."*

It is clear that these two witnesses for SACE do not agree with each other regarding projected compliance costs for CO_2. It is also evident that SACE has taken one position – projected CO_2 costs should be higher – when higher costs are beneficial to one objective (justifying more energy efficiency in the

DSM goals docket), yet has taken the opposite position – projected CO_2 cost should be lower – when lower costs are beneficial to another objective (stopping development of new nuclear units in Florida in this docket).

Q. The fourth of Witness Cooper's concerns about assumptions was that FPL used a low cost estimate for new nuclear units. Would you care to comment?

A. Yes. FPL witnesses Reed and Scroggs discuss one aspect of Witness Cooper's concern in this area: why it is appropriate for FPL to continue to utilize the same non-binding capital cost estimate range of $3,108/kw to $4,540/kw in 2007$ in FPL's ongoing economic analyses. I will discuss another aspect of Witness Cooper's concern regarding nuclear capital costs.

This concern involves what he calls the '$1/kw factor'. Witness Cooper states on page 34, lines 9 – 12: *"The $1/kw factor has changed significantly between 2007 and 2009, as shown in Exhibit MNC – 13. The decline in the implicit $1/kw factor accounts for between one-tenth and one-quarter of the increase in the breakeven capital figure."* He attempts to show this in Exhibit MNC – 13.

In other words, Witness Cooper believes that FPL has changed the $1/kw factor for some reason and the result of that change is that the breakeven capital costs for the new nuclear units have increased in the 2009 analysis by 10% to 25%.

Q. Is Witness Cooper correct in his assertions? If not, please explain.

A. Witness Cooper is not correct. Let's start by first discussing what the $1/kw factor is. It is a calculated factor that equates what $1/kw of overnight capital cost equates to in cumulative present value of revenue requirements (CPVRR) for the capital costs for 2,200 MW of new nuclear capacity (i.e., Turkey Point 6 & 7). The factor was developed to assist in the calculation of capital breakeven costs in the last step of FPL's economic analysis of new nuclear units.

For example, if one were to look at Exhibit SRS – 5 of my direct testimony in this docket, the values in columns (5) and (6) can be used to show how the $1/kw factor is applied. Let's look at the last row of column (5) where we see the cost differential between the Plan with Nuclear and the Plan without Nuclear – CC is $9,909 million CPVRR in 2009$. The question is what overnight construction cost (in terms of $/kw) for 2,200 MW of new nuclear capacity will make the capital cost of new nuclear generation equal to $9,909 CPVRR, which, in turn, will result in the two resource plans having identical (breakeven) CPVRR costs.

The actual factor FPL is applying in column (6) is approximately $0.5282/kw of overnight capital cost per $1 million CPVRR in 2009$. Therefore, when the $9,909 million CPVRR cost differential in column (5) is multiplied by the $0.5282 value, the result is $5,234/kw of overnight capital costs for new

nuclear generation. This overnight capital cost will result in the two resource plans, the Resource Plan with Nuclear and the Resource Plan without Nuclear – CC, breaking even for this fuel and environmental compliance cost scenario.

Witness Cooper's approach in his Exhibit MNC – 13 is to use the inverse of this factor, 1/0.5282 = 1.893. He shows this value on what appears to be the 6th column of his exhibit. The exhibit also derives the inverse of the factor FPL used in its 2007 need filing (which was approximately 0.5068), 1/0.5068 = 1.973. To this point there is no problem in Witness Cooper's approach.

However, he does create a problem in his last column of the exhibit. In this column, entitled *"Factor Change as % of Break even change"*, he appears to attempt the following calculation (he supplies no explanation or formulae): divide the percentage difference in his $1/kw factors by the percentage difference in the breakeven costs. The result of his dividing a percentage by a percentage is shown in this last column – a series of values ranging from approximately 10 to 27. He interprets these results to mean that the change in his $1/kw factors from 1.973 to 1.893 *"... accounts for between one-tenth and one-quarter of the increase in the breakeven capital figure."*

In other words, Witness Cooper believes this slight factor change somehow has driven up the breakeven cost by 10% to 25%. This interpretation of his

calculation results is incorrect. The breakeven costs for nuclear have not increased by 10% to 25% due to this slight change in the factor.

Q. What is the actual impact of the change in the $1/kw factor?

A. The $1/kw factor has changed by only 4%. This can be derived simply by computing the percentage change in Witness Cooper's factors: (1.973/1.893) - 1 = 0.042, or 4%. Therefore, if the only change in the economic analysis from 2007 to 2009 was this slight change in the $/kw factors, the most that the breakeven costs would have increased is 4%.

Q. Why did the $1/kw factor change and is the real impact of the change a 4% increase in breakeven costs?

A. The factor changed slightly because the discount rate changed from the 2007 analysis to the 2009 analysis. This change in the discount rate automatically results in a change in the $/kw value that equates to $1 million in CPVRR cost for 2,200 MW of new nuclear.

However, it is worth noting that the change in the discount rate was applied also to the calculation of costs for the combined cycle units. Therefore, the actual impact of the change in the $1/kw factor on the breakeven capital costs for nuclear is likely less than 4%.

Q. Was there any other concern regarding FPL's economic analyses that Witness Cooper has that you wish to address?

A. Yes. On page 35, lines 7 – 20, Witness Cooper discusses (paraphrasing) that FPL's economic analyses may have assumed that any excess capacity on the

system (presumably resulting from the large 1,100 MW nuclear units) would be used to make potential 'off-system' sales that could result in the nuclear units appearing more cost-effective than they should versus the *"small"* (page 35, line 3) combined cycle units.

Q. Did FPL's economic analyses utilize such an approach?

A. No. In FPL's economic analyses of both the nuclear and combined cycle units, the only assumption for sales (other than to native load customers) was that existing sales contracts would be served. The assumptions for these contracts were identical in the calculations for both the Resource Plan with Nuclear and the Resource Plan without Nuclear - CC. There were no other potential (i.e., not under current contract) sales assumed in the analyses.

Furthermore, even if FPL had assumed that excess capacity could be used for potential sales, nuclear might have been disadvantaged by this assumption. This is because the combined cycle units are 1,219 MW, significantly larger than the 1,100 MW nuclear units, a fact that has been part of each of FPL's economic analyses of new nuclear units including the 2007 need filing.

III. Witness Cooper's "Economic Analyses"

Q. Did Witness Cooper provide a meaningful, comprehensive economic analysis that showed what the system economic impacts would be if the

new nuclear units, Turkey Point 6 & 7, were not added to the FPL system?

A. No.

Q. Did Witness Cooper provide any economic analysis at all?

A. No. The entire extent of his "economic analysis" was to state that (paraphrasing) it costs less on a cents/kwh basis to either produce a kwh with other generating options, or to save a kwh through energy efficiency, than to generate a kwh with a new nuclear unit.

For example, Witness Cooper makes the following statement on page 20, lines 8 - 11 of his testimony: *"As shown in Exhibit MNC – 6, paged 1 and 2, in half a dozen studies the cost of alternatives that included renewables and/or efficiency, every analyst found several non-fossil resources less costly than nuclear."* An examination of MNC – 6, pages 1 and 2, present a series of comparisons of a number of resource options that were performed by various parties. (It does not appear that Witness Cooper performed any of these comparisons.) No information is provided on the exhibit's pages to indicate what type of economic analysis was performed. Some "cost" was developed for nuclear and this cost value was assigned a value of 100%. Then values for all other resource options were developed and compared, in percentage terms, to nuclear.

Despite the lack of information on this slide, it appears safe to assume from Witness Cooper's testimony that the cost values used were levelized cost values on a cents/kwh basis. On page 33, line 7, Witness Cooper discussed how resource options can be compared: *"The typical methodology is a levelized cost comparison of the different alternatives."* On lines 12 -13 of the same page, he states: *"Generally, analysts calculate the projected cost per kilowatt-hour."*

Unfortunately, this is the full extent of Witness Cooper's "economic analysis" that supposedly supports his recommendation that Florida cease its on-going evaluation of new nuclear units.

Q. Does Witness Cooper at least provide the information used to develop these cents per kwh values so that one could determine key aspects of the calculation including, but not limited to: what costs were included in the calculations, what costs were excluded in the calculations, the vintage of assumptions, the source of the assumptions, what years the calculations addressed, what year or years the costs were levelized to, and how the calculations were performed?

A. No.

Q. Besides the fact that no explanation or detail is provided for these calculations, what is your reaction to Witness Cooper's use of a cents/kwh approach for attempting to judge the economics of competing resource options?

A. I found it both informative and disappointing.

Q. How was it informative and disappointing?

A. The informative portion was the statement on lines 12 – 13 on page 33: *"Generally, analysts calculate the projected cost per kilowatt-hour."* Note that he said "analysts" use this method. He did not say that 'utility resource planners', or 'Commissions', - both parties that seek to evaluate resource options with a complete accounting of all of the cost impacts on a specific utility system from competing resource options - use this approach to make resource option decisions. The reason that parties seeking economic analyses with a complete accounting of all system cost impacts do not use a levelized cents/kwh approach is that it is fundamentally flawed when used in an attempt to compare a variety of resource options <u>because this approach does not account for a variety of system costs</u>.

Therefore, the 'analysts' Witness Cooper is referring to are individuals and organizations who are <u>not</u> interested in a full accounting of costs, especially system costs, when evaluating resource options. The fact that such individuals and organizations either do not recognize the problems inherent in a levelized cents/kwh approach, or recognize this but choose anyway to use this approach because it gives them the 'answer' they seek, is disappointing.

Q. Have the flaws inherent in this analytical approach been discussed previously in Commission dockets?

A. Yes. Most recently, I submitted rebuttal testimony in the DSM goals docket, Docket No. 080407 – EG, that discussed the fundamental flaws in using this approach for the purpose Witness Cooper attempts to use it for – an economic comparison of very different resource options.

That discussion appears in Exhibit SRS – 6 to this rebuttal testimony. The discussion explains the fundamental flaws inherent in using a typical 'screening curve', or levelized cents/kwh, approach when attempting to evaluate a variety of resource options. The discussion also presents an example of the projected levelized cents/kwh value approach applied to a combined cycle unit. The levelized value that is derived from a typical screening curve analysis is provided first. That value is 6.8 cents/kwh, a value that falls within the range of approximately 6 to 13 cents/kwh for this type of generating unit in Witness Cooper's Exhibit MNC – 6, page 3 of 4.

The discussion then shows what happens when one slightly modifies the original screening curve calculation so that only two of the flaws inherent in a typical screening curve approach are addressed. The result is a dramatic decrease in the levelized cents/kwh value for a combined cycle unit from 6.8 to 1.2 cents/kwh. In summary, this discussion points out the fact that typical screening curve analyses use very incomplete information, thus guaranteeing that comparative evaluations of a variety of resource options will produce inaccurate and misleading results.

Q. In summary, how should one view any economic analysis based only on a screening curve analysis?

A. When a person attempts to justify a resource option selection solely with a screening curve analysis, the individual attempting to use such an analysis as justification either does not understand how utility systems work, or knows better but is trying to seek a decision from the Commission that would be based on very incomplete information.

The Commission, and any other interested party, should view a screening curve analysis as an approach that utilizes only an incomplete subset of information, and which, therefore, provides incorrect analysis results. Therefore, resource decisions should not be based upon this analytical approach because a full accounting of system cost impacts has not been presented.

It is for these reasons that FPL does not make resource decisions, nor seek Commission approval for resource additions, based solely on screening curve analyses. FPL's resource planning analyses are designed to capture all relevant, quantifiable costs and system cost impacts on FPL's system in its analyses of competing resource options. FPL utilized this comprehensive analytical approach in the analyses presented in this docket.

Q. Did Witness Cooper offer any other perspective on the economics of new nuclear units that you'd like to discuss?

A. Yes. On Witness Cooper's testimony starting on page 35, lines 22 – 23, and concluding on page 36, line 1, he states: *"The economic advantage claimed for nuclear is actually quite small, when compared to the total costs of the system."* He then attempts to show this through a calculation in his Exhibit MNC – 14 in which he attempts to compare the total system CPVRR costs with the two new nuclear units versus the system CPVRR costs with two combined cycle units. He summarizes the conclusion of his analysis on page 38, lines 8 – 9, of his testimony where he reports the results as: *"...an economic analysis that gives nuclear a slight, 4 – 5 percent, cost advantage."*

Q. What is your reaction to this?

A. Witness Cooper appears to be mixing assumptions and data from FPL's 2007 and 2009 analyses in his calculation. At best, I find that to be a questionable approach. But let's ignore that and see what the point of his analysis appears to be. He appears to be trying to make a point that a CPVRR cost advantage of 4% to 5% is small when comparing Supply options on a very large utility system such as FPL's.

On a system the size of FPL's, I find that cost advantage to be fairly large in comparison to what FPL typically sees in resource option evaluations. In comparisons of Supply options on our system, we often see cost advantages closer to 1% to 2%. Using an analogy of DSM analyses versus Supply options, achieving a benefit-to-cost ratio of 4% to 5%, or as it is usually

presented, 1.04 to 1.05, represents a clear economic choice (assuming the analysis accounts for all DSM-related costs).

Witness Cooper's choice of this metric – savings as a percent of total system costs – is a bit unusual and is misleading for a utility the size of FPL. For example, in all of FPL's nuclear economic analyses since the 2007 need filing, the projected fuel savings from 2021 –on (after both nuclear units are in-service) is at least $1 billion per year in nominal dollars. This annual savings value is an enormous number. The use of Witness Cooper's metric would result in this amount of savings appearing as a smaller % savings value for FPL's system than it would for a utility system half of FPL's size. From this perspective, Witness Cooper's metric is definitely misleading. One billion dollars per year of fuel savings for FPL's customers is an enormous savings no matter how large the utility system is.

IV. Witness Cooper's "Diversity Analysis"

Q. Witness Cooper discusses *"diversity"* on page 32 of his testimony. He also provides Exhibit MNC – 12, *"Diversity of Resource Under Various Technology Scenarios"* in which he attempts to examine diversity for three resource plans. Did you review this discussion and exhibit?

A. Yes. The Herfindahl-Hirschman Index (HHI), as described by Witness Cooper on page 32, lines 7 -9, is: *"...used frequently in economics to evaluate the*

concentration of markets. In fact, the Merger Guidelines of the Department of Justice and the Federal Trade Commission are written in terms of the HHI." I was curious to see how Witness Cooper attempted to apply this index to utility resource planning and to see what the results of his calculation would indicate.

Q. Would you provide your understanding of how the HHI index works?

A. Yes. Witness Cooper's testimony on page 32 provides the calculation formula that is used to calculate the HHI value. The HHI represents a measure of "market concentration" or market "diversity". From examining the calculation formula, the lower the HHI value is, the better. In other words, the lower the HHI value is, the more diverse the market is.

The calculation methodology can derive a lower HHI value in at least two different ways. For example, assume that an HHI calculation has five market categories that are included in the analysis. The calculated HHI value gets lower as the percentages assumed for each of the five categories approach equilibrium (i.e, as the percentages assumed for each of the five categories approaches 20%, thus indicating an equal distribution among the five categories). This is the first way in which an HHI value can be lowered. If each of the five categories does have a 20% share value, the calculated HHI value is 2,000.

The second way in which an HHI value can be lowered is to introduce more categories to which a non-zero percentage is assigned. Let us assume that our example now has 10 categories and that each category is assigned a 10% percentage. The resulting HHI value now drops to 1,000.

Q. Would you now explain how Witness Cooper applied this calculation methodology in his Exhibit MNC – 12?

A. Yes. Witness Cooper's first column provides a listing of five "resources" which are actually fuel/energy types (coal, nuclear, etc.) The 2nd through the 4th columns are directed at FPL (with his 5th through the 7th columns directed at Progress). In regard to the three columns that are directed at FPL, the 2nd and 3rd columns utilize selected data from FPL's 2007 need filing for Turkey Point 6 & 7. The 4th column contains assumed data for a hypothetical resource plan scenario of Witness Cooper's choosing.

In the 2nd column, he appears to extract projected FPL system fuel mix percentage values for the year 2018 from two different scenarios of fuel cost and environmental compliance costs. Then he averages the two values to derive an average fuel mix value. (Witness Cooper provides virtually no explanation of his calculations or assumptions, but one can match his values in the 2nd column using the approach described above.) The values in the 2nd column are from FPL's Resource Plan without Nuclear – CC in the 2007 need filing.

The values in the 3rd column appear to be calculated in the same manner, but the values are from FPL's Resource Plan with Nuclear in the 2007 need filing. Therefore, one of Witness Cooper's column headings is mislabeled. The column heading for his 2nd column is *"FPL No Nuclear"*. This is descriptive enough (but it would have been clearer if he had simply labeled it as FPL's "Resource Plan without Nuclear – CC".) However, the column heading for his 3rd column is *"Gas"*. This is not only unclear, it is in error. The values shown utilize data from FPL's "Resource Plan with Nuclear" and the column heading should reflect that.

The HHI value for the Resource Plan with Nuclear is 5,385 which is lower than the HHI value for the Resource Plan without Nuclear – CC which is 5,782. Therefore, one would conclude that the Resource Plan with Nuclear is better from a fuel diversity perspective than the Resource Plan without Nuclear – CC. (However, this outcome can be seen clearly from just examining the fuel mix values used by Witness Cooper as inputs.)

In his 4th column, Witness Cooper creates another resource plan to which he attributes additional efficiency and renewables. It is not clear what he means by "efficiency" but for purposes of this discussion, I'll assume he means DSM energy efficiency programs and/or appliance and lighting standards. It is also unclear how much energy efficiency and renewables he is assuming are in this resource plan he has created. In his testimony on page 32, lines 18 – 19, he

states: *"Efficiency is assumed to be 12% of the total resource, while incremental renewables are set at 3 percent."* Thus it appears that he is assuming a total 15% contribution from 12% efficiency and 3% renewables. However, in his 4th column, the values shown are 8% for efficiency and about 7% for renewables (which he places in the "Other" category). Perhaps the text of his testimony simply does not match the values in the exhibit, or he may have performed a calculation (that he neglects to show) that results in the efficiency and renewable percentages being different than those in the text of his testimony.

Presumably due to the addition of efficiency and renewables, Witness Cooper adjusts the percentages for all other fuel mix categories (again with no explanation of how he does so.) The HHI value he derives from this new resource plan for FPL is 4,290, lower than either of the other two resource plans. His conclusion, stated on page 32, lines 19 – 20, is that: *"...the efficiency and renewable mix is more diverse than either the nuclear or gas scenarios..."*.

Q. What is your reaction to the analysis presented in Witness Cooper's exhibit and the conclusion that Witness Cooper draws from the results?

A. I believe that his analysis is flawed and, therefore, his conclusion is meaningless. In his calculation, Witness Cooper made at least three errors.

The first error was not ensuring that his resource plan creation was comparable, at least in terms of system reliability, to the two FPL resource plans. The two FPL resource plans were created by FPL to have comparable system reliability. However, there is no information given to show that Witness Cooper even considered system reliability when he created his resource plan; i.e., the third resource plan shown in his exhibit.

Therefore, the comparison Witness Cooper attempts to make may well be an "apples-to-oranges" comparison in which his resource plan creation does not offer comparable system reliability. If that is the case, then any "diversity" analysis is meaningless. In addition, Witness Cooper provides no information regarding the economic impacts, particularly the impact on electric rates, of his resource plan if it were to be implemented on the FPL system. Witness Cooper's sole focus is on system fuel diversity, not on whether his resource plan creation has serious adverse economic or system reliability impacts.

This may be because Witness Cooper believes that his earlier – and fundamentally flawed – screening curve analysis results "prove" these resources are economic. Regardless of Witness Cooper's reasons, it is necessary - at a minimum - to ensure that resource plans being compared provide the FPL system with comparable system reliability.

This fundamental error renders the analysis meaningless even if the calculation methodology had been without error. However, that is not the case.

In regard to the calculation methodology, it is important to remember that the values he starts his calculations with are projected fuel mix percentages for a given year. These values represent the relative percentages of different types of fuel that will be used to serve the annual total kwh used by FPL's customers. This annual total of kwh used by FPL's customers is a value after the impact of all of FPL's DSM programs (i.e., efficiency) have been taken into account. In other words, the 2nd and 3rd columns show the fuel usage after efficiency has been accounted for.

Witness Cooper's second mistake is to account for incremental efficiency as if it were a new fuel resource, and assigning it as a new category. Incremental efficiency should have been accounted for by reducing the amount of kwh served by the utility system, just as efficiency was accounted for in the two FPL resource plans. (Strangely enough, Witness Cooper actually takes the correct approach in his handling of additional renewable energy when he places it in the existing "Other" category.)

This mistake of how he accounts for additional efficiency not only results in incorrect fuel mix percentage values for all of the actual fuel categories, it

artificially lowers the calculated HHI value due to the introduction of another non-zero category (as was discussed earlier) for his resource plan creation that was not accounted for in the same manner in the two FPL resource plans.

His third mistake is to assume that additional efficiency and renewables will lower the fuel mix percentages for all fuel types on the FPL system, including nuclear and coal. On FPL's system, natural gas and oil are the fuels "at the margin" in FPL's operation. Nuclear and coal are baseload energy sources that would see negligible (if any) impact from additional efficiency or renewables that might be added to FPL's system. The fuel use impact of additional efficiency or renewables would be on the marginal fuels, gas and oil, and primarily on gas.

In other words, the same amount of nuclear and coal fuel will continue to be used. Therefore, as Witness Cooper was adjusting fuel mix values due to the assumed addition of efficiency and renewables, the fuel mix percentages for nuclear and coal should have increased, not decreased, because the same amount of nuclear and coal fuel would be divided by a smaller total amount of total system fuel used.

Q. Would you discuss how the HHI calculation might have looked if these three errors had been corrected?

A. Yes. Witness Cooper's failure to create a new resource plan that ensures the same system reliability as the two FPL resource plans presents a serious

problem. However, we can overcome this problem for the purpose of this explanation by doing two things. We first ignore Witness Cooper's flawed resource plan, then we use the two FPL resource plans, the Resource Plan with Nuclear and the Resource Plan without Nuclear – CC, as starting points. Then we'll add the same amount of efficiency and renewables to both resource plans. Because the two FPL resource plans already have comparable system reliability, and identical efficiency and renewable resources will be added to both plans, the resulting resource plans will at least have comparable system reliability.

Using that approach to correct for Witness Cooper's first error, Exhibit SRS – 7 shows an alternate HHI calculation. In page 1 of 2 of this exhibit, there are two rows of calculations. The first row uses the Resource Plan without Nuclear - CC as the starting point. The second row uses the Resource Plan with Nuclear as the starting point. Calculations are then made in each row from these two starting points.

The second error (adding a new category for "Efficiency") is corrected by first removing that extra category, then by adding a new column titled "Amount of Fuel". The reduction in system fuel usage from additional efficiency and renewables is addressed in this new column. The third error (assuming that all fuel categories are affected by additional efficiency and renewables on FPL's system) is corrected by the simple recognition of the fact that, on FPL's

system, the impact of these additional resources will primarily be a reduction in natural gas usage, not a reduction in the use of all fuels types. For simplicity's sake in this example, we'll assume all of the reduction will be from natural gas usage.

In the first row, calculation (1) is merely a duplicate of Witness Cooper's calculation for FPL's Resource Plan without Nuclear - CC and the HHI value of 5,782 matches the value he derived. Calculation (2) then assumes that FPL serves 8% less energy due to additional energy efficiency and that this reduction results solely in a reduction in gas usage. (This can be seen by comparing the "Amount of Fuel" column values in calculations (1) and (2).) The values in the "Resulting Fuel Mix Percentage" column for gas decline, but increase for all other fuels. This is because the amount of energy produced the other fuel types is unchanged, but their percentages are now calculated from a smaller total fuel use value. The result of calculation (2) is that the HHI value has been lowered to 5,514 due to the additional efficiency.

Calculation (3) now adds in a contribution of 7% of annual energy coming from renewables. This is seen by an increase in the "Amount of Fuel" column of 7% in the "Other" fuel type, and a further decrease of 7% in the "Gas" fuel type. The HHI value now drops further to a value of 4,548.

Q. What conclusion do you draw from these calculations so far?

A. The conclusion so far is that if one starts from a resource plan that does not include the new nuclear units, the addition of 8% efficiency and 7% renewables can lower the HHI index. The value calculated for this resource plan is 4,548. The question is what will be the HHI value if the same additions of efficiency and renewables are added to a comparable resource plan that features two new nuclear units?

To answer that question, we return to Exhibit SRS – 7, page 1 of 2, and calculation (4). This calculation is for the Resource Plan with Nuclear and the same HHI value of 5,385 is derived that was shown in Witness Cooper's exhibit.

Calculations (5) and (6) now account for the identical amounts of additional efficiency (8%) and renewables (7%), and account for them in the same way, as was done in calculations (2) and (3). The resulting HHI index of 4,210 is lower than the 4,548 value for the Resource Plan without Nuclear – CC. (In addition, the 4,210 value for the Resource Plan with Nuclear is also lower than the 4,290 value Witness Cooper derived for his resource plan creation, a resource plan that is likely not even be a comparable plan in regard to system reliability.)

Q. How would the results have changed if, in row 2, 15% more nuclear had been added in place of the 15% total for efficiency and renewables?

A. This scenario is examined on Exhibit SRS – 7, page 2 of 2. On this page, calculations (1) through (4) are unchanged, but calculations (5) and (6) have changed due to the assumption of additional nuclear replacing the incremental efficiency and renewables. In this scenario, the HHI value for the Resource Plan with Nuclear in calculation (6) would have increased slightly from 4,210 to 4,359, but would still be lower than the calculation (3) value of 4,548.

Q. What do you conclude from these HHI calculations?

A. In summary, I believe that although the HHI approach is one way to attempt to measure diversity on a utility system, I don't believe it is a particularly meaningful approach to use. Its narrow focus on "diversity" tends to divert attention from a comprehensive analysis that address all impacts that a resource option has on a utility system including system economics, system reliability, etc. Therefore, I currently do not see that an HHI index analysis provides much meaningful information that would not already be available from a more comprehensive analytical approach such as that used by FPL.

Nevertheless, Witness Cooper chose to use the HHI approach. After reviewing the results of that approach, once several errors in his calculation methodology had been corrected, I find no merit to his suggestion that new nuclear capacity cannot improve system fuel diversity. As these calculations show, greater diversity can be achieved by pursuing a variety of resource options: new nuclear, efficiency, and renewables. FPL is pursuing all of these resource options.

Q. Does this conclude your rebuttal testimony?

A. Yes.

BEFORE THE
FLORIDA PUBLIC SERVICE COMMISSION

In re: Nuclear Power Plant)	DOCKET NO. 090009-EI
Cost Recovery Clause)	FILED: September 4, 2009

ERRATA SHEET

TESTIMONY OF STEVEN R. SIM, MAY 2, 2009

Revised Exhibit SRS-5, attached.

REBUTTAL TESTIMONY OF STEVEN R. SIM

PAGE#	LINE #	CHANGE
Page 29	Line 14	"$9,909" to "$9,467"
Page 29	Line 16	"$9,909" to "$9,467 million"
Page 29	Line 22	"$9,909" to "$9,467"
Page 29	Line 23	"$5,234" to "$5,000"

BY MS. CANO:

Q. Are you also sponsoring exhibits to your rebuttal testimony?

A. Yes.

Q. And do those consist of SRS-6 and SRS-7?

A. Yes.

MS. CANO: Chairman Carter, I would note that these have been premarked for identification as Numbers 76 and 77.

CHAIRMAN CARTER: For the record, 76 and 77 on Staff's Comprehensive Exhibit List.

BY MS. CANO:

Q. Have you prepared a summary of your rebuttal testimony?

A. Yes, I have.

Q. Would you please provide that at this time.

A. Yes, I would be happy to. Good afternoon, again, Chairman Carter and Commissioners. My rebuttal testimony addresses the direct testimony of Doctor Mark Cooper, who is representing SACE, and I will summarize my rebuttal testimony as follows.

First, Doctor Cooper essentially recommends that the state of Florida stop any further evaluation of new nuclear units and his recommendation is based on four main points. First, a core belief that the future

is uncertain. Number two, he believes certain current forecasts or assumptions are unfavorable for nuclear. Number three, he believes that screening curve analyses someone else did shows that nuclear is not cost-effective. And, finally, he believes that a calculation that he did perform shows fuel diversity is aided more by renewables and energy efficiency than by additional nuclear energy.

In regard to his first two points, the future is uncertain and certain forecasts are unfavorable for nuclear are basically contradictory in nature. The future is always uncertain, especially when an analysis addresses a 50-year period as we are talking about here. Yet Doctor Cooper is willing to suspend his core belief of an uncertain future if he finds a current forecast that he believes is unfavorable to new nuclear and then somehow assuming that this forecast accurately projects the next 50 years.

Conversely, Doctor Cooper either ignores other forecasts that are favorable to nuclear or points out that these forecasted values will certainly change in the future. Furthermore, Doctor Cooper largely ignores the fact that FPL's analyses address uncertainty by using nine scenarios of fuel and environmental compliance costs and by updating these forecasts plus a

number of other assumptions each year.

Doctor Cooper offers no economic analyses regarding Turkey Point 6 and 7. Instead, he makes references to screening curve analyses performed by others, such as those introduced by SACE in the current DSM goals docket. Such an analytical approach is fundamentally flawed when attempting to evaluate two very different resource options because the approach does not address numerous economic impacts to the utility system as a whole. Consequently, his references to screening curve analyses results of nuclear versus other resource options are meaningless.

Doctor Cooper attempts to show that utility system fuel diversity is aided more by renewables and energy efficiency than by additional nuclear energy by performing an HHI index calculation, a tool not typically used in utility resource planning. However, his calculation contains several errors. Once those errors are corrected, the resulting calculation for FPL's system shows exactly the opposite result, that FPL's fuel diversity will be enhanced more by the addition of new nuclear capacity.

In conclusion, Doctor Cooper's testimony attempts to derail further evaluation of promising new nuclear units in the state of Florida. He attempts to

do so by, one, stating a core belief that the future is uncertain when it helps him, but suspending this core belief when he finds a forecast that is unfavorable to nuclear.

Number two, performing no economic analyses himself and relying instead on screening curve analyses performed by others that are fundamentally flawed when comparing very different resource options.

And, number three, performing a fuel diversity analysis that contains several errors that when corrected shows a new nuclear unit will result in greater enhancement of system fuel diversity than other resource options. Consequently, Doctor Cooper's recommendation that the state of Florida cease any further serious evaluation of new nuclear units does not deserve consideration.

Commissioners, FPL's 2009 analyses, which do directly address uncertainty, show that Turkey Point Units 6 and 7 are still projected to be a solidly cost-effective resource addition for our customers. Therefore, the results of FPL's 2009 economic analyses support the feasibility of continuing to proceed with the evaluation of these units. Thank you.

MS. CANO: FPL tenders the witness for cross.

CHAIRMAN CARTER: Mr. McGlothlin.

MR. McGLOTHLIN: No questions.

CHAIRMAN CARTER: Mr. Davis, you're recognized.

MR. DAVIS: Yes, I have some. Mr. Chair, I just wondered what the Chair's pleasure is for how late we go today.

CHAIRMAN CARTER: Roll it.

MR. DAVIS: I will give it my best shot, and I will try not to be too long. I understand that the Commission has been very busy lately. Thank you.

CROSS EXAMINATION

BY MR. DAVIS:

Q. Doctor Sim, did you write your rebuttal testimony?

A. Yes, I did.

Q. Did you have assistance from an attorney?

A. I had assistance from several people who reviewed it at various stages.

Q. Including attorneys?

A. Yes.

Q. And did you read Doctor Cooper's testimony?

A. Yes, I did.

Q. Can you find anywhere in Doctor Cooper's testimony, and I will give you the opportunity if you would like, where he says don't evaluate the nuclear

option in the state of Florida?

A. Not to parse words, Commissioners, but my understanding of Doctor Cooper's testimony was essentially recommending that the state of Florida spend no more money to evaluate nuclear, certainly not to pursue it in any serious vein. That is my interpretation of Doctor Cooper's testimony.

Q. But nowhere do you read in his testimony where he says do not evaluate the nuclear option in Florida?

A. I would have to reread it in order to figure out if he used the word evaluate or not. That is my interpretation of his testimony.

Q. Were you here when Doctor Cooper gave his summary of his testimony a few minutes ago?

A. No, I was not here.

Q. Okay. So you didn't hear him say unequivocally that he is in favor of continuing to evaluate the nuclear option in the state of Florida and that continuous evaluation is appropriate because of the uncertainties that he has identified?

A. What was the first part of your question, sir?

Q. I said -- I'll see if I can rephrase it.

A. Well, let me see if I can cut short this. Regardless of what Doctor Cooper said in his statement today, my interpretation of his direct testimony was

that the state of Florida should not seriously pursue new nuclear capacity further.

Q. Well, so, in other words, you ignore what he says on the page and you have your own interpretation?

A. Again, I interpreted the body of his testimony to be a suggestion for the Commission to cease further serious evaluation, or for FPL to cease serious evaluation of the new nuclear capacity option.

Q. Well, and I hate to state the obvious, but obviously FPL is doing a lot more than evaluating the nuclear option. FPL is asking this Commission to charge the ratepayers certain expenses for engineering contracts, for, you know, attorneys for one thing, to get licenses. That is far more than evaluating the nuclear option isn't it?

A. Well, I think in something as complex as new nuclear units evaluation can cover a lot of areas.

Q. So you can evaluate up until the time you spend $18 billion, is that correct?

A. No, sir. I would say that we will be evaluating at least up to the point at which we decide that we will begin to construct nuclear units. My general interpretation of evaluation leads me to all of the efforts that FPL is undertaking at least up to that point.

Q. How much will you have spent by then?

A. I don't know.

Q. Today, how much are firm costs of that $18 billion?

A. I do not have that information.

Q. Now, your colleague, Mr. Scroggs, doesn't use the term evaluation for any of the activities that FPL is conducting or proposes to conduct in 2009 and 2010. He uses development. Isn't that a more apt phrase than evaluation for what FPL is doing right now?

A. Again, sir, it is my interpretation of what I mean by the term evaluation. I view it a bit differently once FPL has decided it is time to make a decision as to whether or not we construct these units.

Q. In what time frame will that occur?

A. I do not know when that will occur.

Q. Now, Mr. Scroggs has also mentioned off-ramps. I don't know if you used that term, but when we talk about opportunities for an off-ramp, that could come at any time, could it not?

A. I presume it could, yes.

Q. Now, let me turn to your testimony. You have just stated in your summary that Doctor Cooper is willing to suspend his belief in uncertainty for certain purposes, and I think you related that in particular to

the cost of carbon.

A. I don't believe I addressed in my summary the cost of carbon.

Q. Well, you stated in your testimony that Doctor Cooper would suspend his belief in uncertainty with regard to the predictability of the energy efficiency in renewables mandates in a certain bill in the House of Representatives as compared to the portion of the bill that deals with the cost of carbon. Is that a correct summary of your testimony?

A. I would say in general that is a fair summation. That my interpretation of his testimony was that he was willing to state that albeit that he provided no suggested cost of carbon himself that should have been used in the analysis, he made the assumption that FPL's carbon costs were too high. He didn't point out which of the four different carbon costs we used in our evaluation might have been considered too high.

Q. Well, as a matter of fact, he said all of them were too high because they are all higher than the current estimates based upon the Waxman-Markey bill that has actually passed the House, and estimates that EPA had provided based upon the terms of that bill that had passed.

A. Well, I would point out to the Commissioners

that at least one of the four carbon cost forecasts that we used is directly in line with the estimates for at least the first ten years that the Congressional Budget Office produced. I would also remind the Commissioners that SACE produced a witness in the recently concluded DSM goals docket, Mr. Steinhurst (phonetic) --

MR. DAVIS: I object to that response and ask that it be stricken. I don't believe that what another SACE witness has anything to do with Doctor Cooper's testimony.

CHAIRMAN CARTER: When you ask a question the witness can answer yes or no, but they are allowed to explain their answer. Overruled.

You may proceed.

THE WITNESS: Well, I will point out that this is also in my rebuttal testimony. That SACE sponsored a witness, Mr. Steinhurst -- or Doctor Steinhurst, I'm sorry, I can't remember -- who looked at the exact same carbon cost forecast that we used in this evaluation and paraphrasing came to the conclusion that those costs not only were not too high, but they were at the extreme low end of a reasonable range. And I find it -- I find it interesting that on one hand SACE is sponsoring a witness that claims that carbon costs that FPL used in its evaluation for both DSM and for new nuclear units

are viewed as being too high when those carbon costs would benefit new nuclear units, but on the extreme low end of the range when if they were higher they would have greatly benefited DSM.

BY MR. DAVIS:

Q. Isn't it true that Doctor Steinhart's (sic) numbers were pretty much the same as the EPA numbers, which is also what Doctor Cooper is referring to?

A. I do not know what Doctor Steinhurst's numbers were reflecting. I simply cannot recall. But I am pointing out that FPL's numbers were identical in both the DSM filing and in the nuclear filing, and one SACE witness said they were at the extreme low end of any reasonable range, and Doctor Cooper in this docket is saying that they are far too high.

Q. Well, I think Doctor Cooper is saying that your environmental costs in Cases 2, 3, and 4 are far too high, and that in Case 1, Environmental 1 if they are -- that they are approximately the EPA numbers. I believe that is what he said. And if you look at your -- do you have your testimony, your direct testimony in front of you?

A. Let me check. Yes, I do.

Q. If you will look, please, at SRS-5. Do you have that in front of you?

A. Yes, sir, I do.

Q. So the bottom row of SRS-5, which is the low gas costs and the low environmental costs, that is Environmental 1, that is your low costs?

A. That is correct.

Q. You say that is based upon the Waxman-Markey bill that passed the House and EPA's analysis of that, or is it comparable to that?

A. No, I'm not. I am saying the one that was comparable to the Congressional Budget Office is Environmental 2.

Q. But not EPA's analysis of the Waxman-Markey bill?

A. I'm not familiar enough with the EPA estimates to say one way or the other, sir.

Q. Okay. And you are aware that Doctor Cooper used the EPA analysis of the Waxman-Markey bill?

A. I believe he made reference to that in his testimony, yes.

Q. And are you aware that Doctor Cooper has stated that the carbon costs in your Environmental 1 are even higher than the EPA numbers?

A. I don't recall that from his testimony.

Q. Okay. Now, just so we understand, and I want the Commission to understand, have you analyzed the

Waxman-Markey bill yourself?

A. No, I have not.

Q. And this is the only bill, as a matter of fact, you have given it its correct number, that has passed either house of Congress that would not only create a cost of carbon emissions, but also has a renewable portfolio standard, is that right?

A. To my knowledge, yes.

Q. And you chose in your analysis to focus on a cost of carbon, but not on the renewable portfolio standard part of Waxman-Markey, correct?

A. Yes, for the following reason. At the time that we were required to freeze assumptions and proceed with the analysis in order to make the May 1st date, we were informed by our environmental affairs folks that there were a number of bills still with a good chance to make it through the House, and in looking at those prospective pieces of legislation with our environmental affairs folks, we felt like the best way to proceed was simply to use a wide range of carbon costs in our analyses. If by this time next year a bill has passed both the House and the Senate and has been signed into law, we will have a better defined projection of not only CO2 costs, but of all other -- I will call them ramifications of the bill that would impact our resource

planning and we will be able to incorporate those.

Q. And just so the record reflects the right number, it is HR-2454 that passed the House, which has both the renewable portfolio standard as well as a carbon cap and trade system. Are you familiar with any bills in the Senate that have passed the committees or at least a committee in the Senate that address energy efficiency and renewables?

A. Not to any great detail. We have folks in other departments that follow those bills more closely.

Q. And you have heard of the -- have you heard of the Bingaman bill, Bingaman?

A. Yes, I have heard, and there have been to my knowledge at least several versions of that over the years.

Q. And one that in June passed the environment and public works -- passed out of the environment and public works committee in the Senate?

A. I'm not aware of that development, sir.

Q. And that bill has a renewable portfolio standard, correct?

A. Again, I'm not familiar with that bill, sir.

Q. So, you chose to focus on costs of carbon based upon bills that never even made it out of committee, but did not include the renewable portfolio

standard for bills that have passed the House or passed out of committee?

A. No, sir, I would disagree with that statement. Commissioners, what we chose to do is at the time we were required to freeze assumptions and proceed with our analyses, there was no bill that had been passed and signed into law. There were a number of conflicting pieces of legislation, or proposed pieces of legislation, just as there have been over the last several years that addressed greenhouse gas emissions in a variety of ways.

Until there is a more definitive bill that has passed both houses of Congress and has been signed into law, FPL's belief is the most appropriate way to address carbon costs is to look at it on a broad range of CO2 compliance costs, and that is what we chose to do here.

Q. And all of those were higher than EPA's analysis for the bill that did pass?

A. If you are -- again, I am not familiar with the EPA estimate, but if what you are stating is that one entity did an analysis of a proposed piece of legislation and came out with numbers that differ from FPL's numbers, I don't find that surprising.

Again, one of our forecasts, Environmental 2, seems to be exactly in line with what the Congressional

Budget Office projects for CO2 costs. But, until we have a passed piece of legislation that has been signed into law, and probably after we also go through a number of court challenges will we only then begin to have a definitive view of how carbon should be treated in resource planning analyses.

Q. Now, you know, do you not, that the bill that passed the House also contains tougher standards for energy efficiency for buildings and appliances?

A. I am told that is the case, but I don't know the details of that.

Q. Now, FPL is relying upon this bill even though it has only passed one house of Congress --

MR. DAVIS: And I seem to have lost any help back here, but may I approach the witness and pass out some exhibits, please?

CHAIRMAN CARTER: You may approach. Do you need a number for that?

MR. DAVIS: Yes, I do.

CHAIRMAN CARTER: Hang on a second. Mr. Anderson or Ms. Helton may have an objection to it, so let's see -- for sequencing, Commissioners, that will be Number 137. A short title?

MR. DAVIS: A short title is Earnings Conference Call, FPL.

CHAIRMAN CARTER: Earnings Conference Call, FPL. You may proceed.

MR. DAVIS: Thank you, Mr. Chair.

(Exhibit Number 137 marked for identification.)

BY MR. DAVIS:

Q. Doctor Sim, I downloaded this from FPL's website, and this is an earnings conference call dated July 28th, 2009. Are you aware that FPL is tauting its positioning to take advantage of the American Clean Energy and Security Act which passed the House?

A. I'm sorry, what was the verb you used?

Q. Tauting its positioning to take advantage of the renewable electricity standard that would be encompassed in this bill?

A. I'm not aware of that one way or the other, sir.

Q. FPL Group's clean generation portfolio is well positioned given the long-term trends affecting the industry. Would you agree with that statement?

A. I would say that is probably accurate, yes. We are a very clean utility and we will become even cleaner with new nuclear capacity on our system.

CHAIRMAN CARTER: Is that a different document, Mr. Davis?

MR. DAVIS: Yes. I am going to pass out one more exhibit.

CHAIRMAN CARTER: 138, Commissioners. 138. Short title?

MR. DAVIS: Strategic Decisions Conference, 2009.

CHAIRMAN CARTER: Thank you.

MR. DAVIS: May I proceed, Madam Chair?

COMMISSIONER EDGAR: Yes, sir.

MR. DAVIS: Thank you.

(Exhibit Number 138 marked for identification.)

BY MR. DAVIS:

Q. Doctor Sim, do you have this Exhibit 139 (sic), I believe it is, in front of you?

A. Yes, sir.

Q. The second page talks about the Waxman-Markey bill as perhaps the most comprehensive body of energy and climate legislation ever contemplated. This is from a conference where Lew Hay, the Chairman and CEO, made a presentation in May of 2009. Do you agree with that?

A. Subject to check. I'm not aware of this presentation. This is the -- this document is the first document I have seen that is associated with it.

Q. Also, downloaded from FPL's website. And FPL

talks about in this particular --

MS. CANO: Madam Chairman.

COMMISSIONER EDGAR: Yes, ma'am.

MS. CANO: I am going to need to object here. Both of these documents so far, and we have allowed a little bit of questioning, but they are related to FPL Group and Doctor Sim does not address FPL Group or the implications of any legislation on FPL Group in his testimony.

COMMISSIONER EDGAR: To the objection.

MR. DAVIS: I think they are closely related. I am not aware of the innerworkings of the FPL corporate structure, but I think that in terms of Lew Hay, being the Chairman and CEO, I thought he is also an executive of the FPL that we are dealing with here today. If I'm wrong about that, please correct me. I'm not from around here.

COMMISSIONER EDGAR: Will you respond.

MS. CANO: I'm sorry?

COMMISSIONER EDGAR: Please respond.

MS. CANO: Lew Hay is not an executive of FPL Company.

MR. DAVIS: I have no further response on that.

COMMISSIONER EDGAR: Ms. Helton.

MS. HELTON: Not that I am an expert on Florida Power and Light's corporate structure, either, but I do think that Mr. Hay is Mr. Olivera's boss. I think I have learned that in the course of the last few weeks. You know, this is another one of those tough ones, Madam Chairman.

COMMISSIONER EDGAR: May I ask this, can you share with us a little bit what it is, or what line, or where you are going with this?

MR. DAVIS: Yes.

COMMISSIONER EDGAR: I mean, with each of these.

MR. DAVIS: Sure, Madam Chair.

COMMISSIONER EDGAR: Thank you.

MR. DAVIS: The witness in his rebuttal testimony has argued that Doctor Cooper was wrong to rely upon the renewable portfolio standard that is part of the Waxman-Markey bill, or the American Clean Energy and Security Act of 2009, which is discussed in these slides. And that ultimate passage of this bill and the ultimate implementation of the renewable portfolio standard from the federal level is too uncertain to rely upon. Where on the other hand, FPL is relying upon carbon charges that are based upon bills that never passed either house of Congress. So the point is that

FPL itself is relying upon the renewable portfolio standard of the Waxman-Markey bill in terms of projecting its ability to take advantage of the renewable portfolio standard financially in the future.

COMMISSIONER EDGAR: Ms. Helton.

MS. HELTON: Madam Chairman, my inclination is to recommend to you that cross-examination on this exhibit be allowed as long as he can -- I think he has shown that there is relevance to the testimony thus far in the record, just keeping in mind that this, I think, would constitute hearsay evidence, and so unless there is an exception, which I guess you could say this is an admission by an FPL executive, that is the type of evidence we are dealing with.

MR. DAVIS: It would either be that or a business record kept in the normal course of business with sufficient indicia of reliability on its face, and I believe it would come in pursuant to Florida Statute 90.706.

COMMISSIONER EDGAR: Okay. I think we are in a gray area, but recognizing that generally we try to round out the information that is before us, I will allow. So you may proceed.

MR. DAVIS: Thank you, Madam Chair. And I think I have already asked the questions I wanted to ask

about the exhibits.

COMMISSIONER EDGAR: Well, why don't you pose the question to the witness.

BY MR. DAVIS:

Q. I guess at the point of the objection we were talking about the Sanford Bernstein and Company Strategic Decisions Conference 2009 exhibit, and my question to the witness was hasn't FPL Group stated that the Waxman-Markey bill was perhaps the most comprehensive body of energy and climate legislation ever contemplated?

A. Well, that certainly is the first sentence on the second page of the document you handed me. But, Commissioners, in regard to this docket, the Waxman-Markey bill was signed after we had filed our analyses for this docket. Therefore, I am a bit at a loss to understand how FPL could have incorporated the projected effects of a bill that by our company's information changed significantly a number of times before passage and we needed to freeze assumptions months ahead of time before the May 1st filing.

And as I indicated before, if this bill, which is still a proposed bill and a contentious bill, if it passes both houses of Congress, and it is signed into law, and there are specific requirements that need to be

made, we will do our best to attempt to incorporate them in our resource planning from that point forward, including nuclear cost-recovery filings in the future.

Q. Now, Doctor Sim, if there is no bill that passes before the end of the year or early next year that includes a carbon tax or a cap and trade program that would result in a carbon charge, would you take that out of your analysis?

A. I'm sorry, would I take what out of my analysis?

Q. A carbon charge, a carbon tax, or cost?

A. In all likelihood, no, we would not take it out because we would be in the same situation we have been in for the last several years, since 2007, when we have included a variety of environmental compliance cost forecasts in our analyses. Chances are we would be doing something similar along those same lines until legislation passed and was signed into law and gave us something more definitive to work with.

Q. And don't get me wrong, I'm not criticizing FPL or any other utility for projecting into the future what carbon costs might be imposed by future legislation. We have advocated that in integrated resource planning before, but it makes no sense to include a carbon charge but not another likely

provision, which is the renewable portfolio standard. Isn't that true?

A. I would say if there is more uncertainty in our company's mind regarding efficiency standards than, say, carbon costs, I disagree with your statement. I would say that we would in that case be inclined to continue to include carbon costs but continue to be more cautious in regard to any efficiency standards.

Q. And you don't know what the certainty is one way or another about the efficiency standards?

A. I don't think anyone knows with certainty what any piece of proposed legislation's final outcome is going to be.

Q. Including carbon costs?

A. Including carbon.

MR. DAVIS: Give me just a minute, Madam Chair.

COMMISSIONER EDGAR: Yes, sir.

BY MR. DAVIS:

Q. You have talked about in your rebuttal testimony that an investment in new nuclear power units would provide more flexibility to FPL. How many combined cycle gas units could be built for $18 billion?

A. It would depend upon the cost of the combined cycle units, the cost of the firm gas transportation, et

cetera, so I don't have a firm number for you. But it would be a fair number. However, as the Commission is well aware of, we are projecting to be serving our customers around 2017/2018, the energy produced will be roughly 66, 67 percent natural gas fired units.

Q. Let me -- I know what you are going to launch into, your canned statement again. But before we do that, how quickly could those natural gas units be built?

A. With the Commission's current bidding rule, each unit would require roughly four years or so to be announced to be bid, to go through a need determination filing, and then to be constructed. So somewhere, four, four and a half years.

Q. So you are telling this Commission that an $18 billion nuclear plant is more flexible than combined cycle gas that provides you more flexibility? How do you get there?

A. I guess it would depend upon your term of flexibility. I don't believe my definition of flexibility may match yours.

Q. Just like your term evaluation doesn't match anyone else's?

A. I'm not sure it matches anybody else's, I'm not sure that it matches any one individual; it is my

term, sir. In regard to flexibility in nuclear units, I think the point I made in my rebuttal testimony is if we were to have on our system another 2,200 megawatts of base load capacity that operates at 90 percent for a minimum of 40 years, uses absolutely no fossil fuel, absolutely no system emissions, fully serves the needs of approximately one million FPL customers fully, that provides a great deal of operational and planning flexibility for our system, and that is the point I made in my rebuttal testimony.

Q. And if that nuclear capacity came in at 50 percent more than the 18 billion projected, 100 percent more than the 18 billion projected, that flexibility is totally gone because you have got to operate that sucker no matter what it costs at that point, right?

A. My discussion of flexibility, as I stated in my rebuttal testimony, was absent any consideration of economics. It assumed that the decision was made to build and that the units were brought on-line. So it was an economics aside decision.

I assume if we got to the point where nuclear units, the capital costs were looking prohibitively expensive, we might well be seeking one of those offramps that you decided, but we are not at that point

now. Nothing that we see in our analyses indicates that we are approaching that.

MR. DAVIS: That's all I have.

MR. YOUNG: No questions.

COMMISSIONER EDGAR: No questions from staff. Any questions from the bench? Redirect.

MR. MOYLE: Could I ask one, Madam Chair?

COMMISSIONER EDGAR: Did we not come to you?

MR. MOYLE: No.

COMMISSIONER EDGAR: Were you here?

MR. MOYLE: It's good to be missed.

COMMISSIONER EDGAR: Before we go to redirect, Mr. Moyle.

CROSS EXAMINATION

BY MR. MOYLE:

Q. Just one question? Have you ever heard of the term in the utility industry of a lumpy investment?

A. I don't think I have heard the phrase lumpy investment.

Q. Or a lumpy project? Do you have any understanding of the use lumpy in the --

A. Perhaps if you could clarify for me.

Q. I have seen it, I believe, in the context of an expenditure that didn't provide a lot of flexibility. It was, you know, a lumpy expenditure. Do you have any

familiarity with that?

A. I have never heard that term in that regard, no.

MR. MOYLE: That's all I have.

COMMISSIONER EDGAR: I believe now we are at redirect.

MS. CANO: No redirect. Thank you.

COMMISSIONER EDGAR: No redirect. Okay. Let's take up exhibits.

MS. CANO: FPL moves Exhibit Numbers 76 and 77.

COMMISSIONER EDGAR: Hearing no objections, 76 and 77 entered into the record.

(Exhibit Number 76 and 77 admitted into the record.)

COMMISSIONER EDGAR: I believe that brings us to the back.

MR. DAVIS: SACE moves 138 and 139.

COMMISSIONER EDGAR: 138 and 139. Any objection?

MR. YOUNG: Excuse me, Madam Chair, I have it as 137 and 138.

MR. DAVIS: I'm sorry.

COMMISSIONER EDGAR: Well, let me double-check, because I am getting tired. I have left

an empty spot, and so you are correct. Earnings Conference Call, 137, and Strategic Decisions Conference 2009 as 138.

MR. YOUNG: Yes, ma'am.

COMMISSIONER EDGAR: Okay. Thank you for that correction. I had missed a spot when I flipped the page. Okay. Any objection to either of those?

MS. CANO: FPL maintains the objection that these are related to FPL Group and outside the scope of Doctor Sim's testimony and irrelevant.

COMMISSIONER EDGAR: And per our previous discussion, the objection is noted and the documents will be entered into the record as we had marked them, 137 and 138.

(Exhibit Numbers 137 and 138 admitted into the record.)

COMMISSIONER EDGAR: And the witness is excused. Thank you.

THE WITNESS: Thank you.

CHAIRMAN CARTER: Call your next witness.

MR. ANDERSON: FPL calls Winnie Powers.

CHAIRMAN CARTER: You may proceed.

MR. RUBIN: Thank you, Chairman Carter.

WINNIE POWERS

was called as a rebuttal witness on behalf of Florida

Power and Light Company, and having been previously sworn, testified as follows:

DIRECT EXAMINATION

BY MR. RUBIN:

Q. Have you been sworn earlier today?

A. Yes, I have.

Q. Could you please remind the Commission of your name and state your business address?

A. Yes. My name is Winnie Powers. My business address is 9250 West Flagler Street, Miami, Florida.

CHAIRMAN CARTER: Hang on one second. Commissioners, can you all hear on that end? Are you okay? Staff, can you hear?

MR. YOUNG: Yes, sir.

CHAIRMAN CARTER: Okay. You may proceed.

MR. RUBIN: Thank you.

BY MR. RUBIN:

Q. Please remind the Commission about by whom you are employed and in what capacity.

A. Yes. I am employed by Florida Power and Light Company, the New Nuclear Accounting Project Manager.

Q. Have you prepared and caused to be filed five pages of prefiled rebuttal testimony in this proceeding on August 10, 2009?

A. Yes.

Q. Did you also cause to be filed errata to your testimony on September 4, 2009?

A. Yes.

Q. Do you have any further changes or revisions to your prefiled rebuttal testimony?

A. No, I do not.

Q. If I asked you the same questions contained in your prefiled rebuttal testimony, would your answers be the same?

A. Yes.

MR. RUBIN: Chairman Carter, FPL asks that Ms. Powers' prefiled rebuttal testimony of August 10, 2009, with errata, be inserted into the record as though read.

CHAIRMAN CARTER: The prefiled testimony of the witness will be inserted into the record as though read.

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

FLORIDA POWER & LIGHT COMPANY

REBUTTAL TESTIMONY OF WINNIE POWERS

DOCKET NO. 090009-EI

August 10, 2009

Q. Please state your name and business address.

A. My name is Winnie Powers. My business address is 9250 W. Flagler St, Miami, Florida 33174.

Q. Have you previously provided testimony in this docket?

A. Yes.

Q. What is the purpose of your rebuttal testimony?

A. My rebuttal testimony addresses three policy issues.

Q. In general terms, what policy issues do you address?

A. I direct my comments to three issues identified by Staff. The first is related to over or under collections in the Nuclear Cost Recovery Clause (NCRC). The second is the carrying charge that should be accrued on deferred balances approved for recovery in the Capacity Cost Recovery Clause (CCRC). The third is the recovery of the incremental/decremental difference on Allowance for Funds Used During Construction (AFUDC) when the related plant is placed into service.

Q. Should over or under collections in the CCRC be included in the calculation of recoverable costs in the NCRC? (Issue 1A)

A. No. The CCRC is the designated recovery clause for NCRC costs. Therefore, over and under collections in the CCRC should remain in the CCRC since they are the result of over/under collections of actual sales revenues that are greater than or less than costs to be recovered in the CCRC, as is the practice with current capacity charge over and under recoveries.

Rule 25-6.0423 (the Rule) defines the appropriate costs to be recovered in the NCRC. FPL files its projected costs and/or carrying costs eligible for recovery according to the Rule and Statute 366.93, F.S. for the NCRC using the Nuclear Filing Requirement Schedules (NFRs).

Through the NFRs, carrying costs are calculated at the fixed FPL rate of 7.42% (pre-tax 11.04%) provided for pursuant to Section 2(b)2 of Rule 25-6.0423. Projected costs and/or carrying costs determined through the NFRs for the NCRC are recovered in the following year in the CCRC.

Once NCRC costs have been approved for recovery in the CCRC, any differences between actual sales revenues collected through the CCRC and the projected costs approved for recovery in the NCRC results in an over or under recovery that remains in the CCRC. This over or under recovery in the CCRC will incur interest at the commercial paper rate.

Differences between the NCRC actual costs incurred and the actual/estimated or projected costs will be included in the calculation of recoverable costs in the NCRC and will accrue a carrying charge at the fixed FPL rate of 7.42% (pre-tax 11.04%) provided for pursuant to Section 2(b)2 of Rule 25-6.0423, through the NCRC until recovered in a future period.

Q. When a utility elects to defer recovery of some or all of the costs that the Commission approves for recovery through the Capacity Cost Recovery Clause, what carrying charge should accrue on the deferred balance? (Issue 1B)

A. Rule 25-6.0423 establishes the procedures for the Commission to conduct current (annual) prudence and reasonableness reviews to determine whether costs are appropriate for NCRC recovery. If a utility requests deferral of approved costs, and the Commission approves such deferral, then the Commission has effectively created a regulatory asset for future recovery through the CCRC. The regulatory asset should remain in the NCRC and continue to accrue carrying charges at the pre-tax AFUDC rate as of June 2007. The Commission has allowed a return on items that have been deferred, both regulatory assets and regulatory liabilities, which are not reflected in rates. For example, per Order No. 10306, Docket No. 810002-EU, the Commission created regulatory assets related to Martin dam costs and expanded fuel storage facilities at Turkey Point and authorized FPL to charge AFUDC to the deferred amounts. Similarly, per Order No. PSC-94-0393-FOF-EI, Docket No. 940042-EI, the Commission directed FPL to create a

regulatory liability for gains associated with emission allowances. In this instance, FPL credits its Environmental Clause with amounts based on the pre-tax cost of capital applied to the regulatory liability. Deferred amounts (i.e., regulatory assets in the NCRC) do not contribute to over or under recoveries that are subject to interest at the commercial paper rate applied to the CCRC.

Q. Should FPL and PEF be permitted to record in rate base the incremental difference between AFUDC permitted by Section 366.93, F.S. and their respective most currently approved AFUDC, for recovery when the nuclear plant assets enter commercial operation?

A. Yes. As defined by the Nuclear Cost Recovery Rule 25-6.0423(2)(d), "costs" includes, but is not limited to, all capital investments including rate of return. Utilities should be allowed to recover the approved carrying costs by tracking the incremental/decremental difference between the carrying charge rate required by Section 366.93, F.S. and the most currently Commission-approved AFUDC. The incremental/decremental difference will be accumulated and recorded to CWIP and recovered/returned through base rates over the useful life of the related plant assets placed in service.

For example, in April 2008, the FPSC approved the change in the Company's AFUDC rate from 7.42% to 7.65% effective January 1, 2008. The resulting increment of .23%, when compared to the statutory fixed FPL rate for the NCRC of 7.42%, was recorded in CWIP. In May 2009, the FPSC approved the change in the Company's AFUDC rate from 7.65% to 7.41% effective January 1, 2009.

The resulting decrement of .01%, when compared to the statutory fixed FPL rate for the NCRC of 7.42%, is being credited to CWIP, reducing the amount of AFUDC increment previously recorded.

The net amount will continue to remain in CWIP and be adjusted each period until the related plant goes into service and is recovered through base rates. This method allows for recovery of the Company's Commission-approved carrying cost through the NCRC, while ensuring the customer only pays for these approved carrying costs, no more and no less.

Q. Does this conclude your testimony?

A. Yes.

BEFORE THE
FLORIDA PUBLIC SERVICE COMMISSION

In re: Nuclear Power Plant Cost Recovery Clause	))	DOCKET NO. 090009-EI FILED: September 4, 2009

ERRATA SHEET

REBUTTAL TESTIMONY OF WINNIE POWERS

PAGE#	LINE #	Change
4	13 - 16	"Utilities should be allowed to recover the approved carrying costs by tracking the incremental/decremental difference between the carrying charge rate required by Section 366.93, F.S. and the most currently Commission-approved AFUDC." TO "Utilities should be allowed to recover the approved carrying costs **under the Rule while** tracking the incremental/decremental difference between the carrying charge rate required by Section 366.93, F.S. and the most currently Commission-approved AFUDC."
5	6 - 9	"This method allows for recovery of the Company's Commission-approved carrying cost through the NCRC, while ensuring the customer only pays for these approved carrying costs, no more and no less. TO "This method allows for recovery of the Company's Commission-approved carrying cost through the NCRC, while ensuring the customer **ultimately** only pays for **the actual financing costs**, no more and no less."

BY MR. RUBIN:

Q. Do you have any exhibits that you are sponsoring with your rebuttal testimony?

A. Yes. No, I'm sorry, I don't.

Q. Have you prepared a summary of your rebuttal testimony?

A. Yes, I have.

Q. Would you please provide the summary to the Commission.

A. Good afternoon, again, Mr. Chairman, Commissioners. The purpose of my rebuttal testimony is to address three issues. One, over/under collections in the capacity cost-recovery clause, or CCRC, to the carrying charge that should be accrued on deferred balances approved for recovery in the CCRC, and, three, the recognition of the incremental or decremental difference on allowance for funds used during construction, or AFUDC.

Regarding the first issue, over or underrecoveries in the CCRC, it is FPL's position that over and under collections in the CCRC should not be included in the nuclear cost-recovery clause, but should remain in the CCRC. These amounts are the result of over or under collections of actual sales revenues compared to costs to be recovered in the CCRC, and this

treatment is consistent with the current treatment of capacity charge over and underrecoveries.

On the second issue, the carrying charges on deferred balances, if a utility requests deferral of approved costs and the Commission approves such a deferral, a regulatory asset will be created for future recovery through the CCRC. The regulatory asset will remain in the nuclear cost-recovery clause and continue to accrue carrying charges at the statutory rate until it is recovered. Deferred amounts in the nuclear cost-recovery clause do not contribute to over or underrecoveries that are subject to interest at the commercial paper rate applied to the CCRC and, therefore, should not be treated as such.

Lastly, FPL's method of recognizing the incremental or decremental difference on FPL's AFUDC rate as opposed to the statutory carrying charge rate is fair to both customers and to the company. This method allows for recovery of the company's actual costs and only those costs. The most currently Commission approved AFUDC rate represents the company's actual financing costs.

Commissioners, in order to ensure equity, FPL must continue to recognize the incremental or decremental difference between the statutory carrying

charge rate and the most currently Commission approved AFUDC rate. The incremental or decremental difference between actual financing costs and the statutory rate allowed for recovery in the nuclear cost-recovery clause is a cost as that term is defined by the statute and the rule. Because this incremental or decremental cost cannot be included in the nuclear cost-recovery clause, it must be recovered or refunded in base rates when the related plant assets are placed into service. This will ensure the customer only pays for the actual costs of these projects, no more and no less. This concludes my summary.

MR. RUBIN: FPL tenders the witness for cross-examination.

CHAIRMAN CARTER: Thank you. Mr. McGlothlin.

MR. McGLOTHLIN: I have no questions.

CHAIRMAN CARTER: Mr. Davis.

MR. DAVIS: None. Thanks.

CHAIRMAN CARTER: Mr. Moyle.

MR. MOYLE: No questions.

CHAIRMAN CARTER: Staff.

MR. YOUNG: No questions.

CHAIRMAN CARTER: Commissioners. No redirect, then probably, huh?

MR. RUBIN: Yes, sir.

CHAIRMAN CARTER: And she didn't have any exhibits to her rebuttal, right?

MR. RUBIN: That's correct.

MR. ANDERSON: And by the way, this is Ken Rubin of Florida Power and Light.

CHAIRMAN CARTER: Mr. Rubin, welcome to the PSC.

MR. RUBIN: Thank you very much.

CHAIRMAN CARTER: It's good to see you. Okay. Then nothing further for this witness? You may be excused. Have a good evening.

THE WITNESS: Thank you. You, too.

CHAIRMAN CARTER: Call your next witness.

MR. ANDERSON: FPL calls John Reed.

MS. CANO: Hello, again, Mr. Reed.

THE WITNESS: Good evening.

MS. CANO: You were previously sworn, correct?

THE WITNESS: Yes, I was.

JOHN J. REED

was called as a rebuttal witness on behalf of Florida Power and Light, and having been previously sworn, testified as follows:

DIRECT EXAMINATION

BY MS. CANO:

Q. Would you please restate your name and

business address for the record?

A. John Reed. My business address is 293 Boston Post Road, Marlborough, Massachusetts.

Q. Did you prepare and cause to be filed 39 pages of prefiled rebuttal testimony in this proceeding?

A. Yes, I did.

Q. Did you also prepare and cause to be filed an errata sheet to your rebuttal testimony?

A. Yes, I did.

Q. Do you have any other changes or revisions to make to your prefiled rebuttal testimony?

A. No, nothing further.

Q. With the errata, if I were to ask you the same questions contained in your prefiled rebuttal testimony today, would your answers be the same?

A. Yes, they would.

MS. CANO: Chairman Carter, I ask that the prefiled rebuttal testimony of this witness be inserted into the record as though read.

CHAIRMAN CARTER: The prefiled testimony of the witness will be inserted into the record as though read.

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

FLORIDA POWER & LIGHT COMPANY

REBUTTAL TESTIMONY OF JOHN J. REED

DOCKET NO. 090009-EI

AUGUST 10, 2009

I. INTRODUCTION

Q. Please state your name and business address.

A. My name is John J. Reed. My business address is 293 Boston Post Road West, Marlborough, Massachusetts 01752.

Q. Are you the same John J. Reed who previously filed direct testimony in this proceeding?

A. Yes, I am.

Q. Are you sponsoring any exhibits along with this testimony?

A. Yes I am. The following exhibits are attached to my rebuttal testimony in this proceeding:

Exhibit JJR_2 – The Contract Price/Owner Contingency Dynamic

Exhibit JJR_3 – Nuclear Reactors under Construction, Planned or Proposed

Exhibit JJR_4 – NYMEX Natural Gas Futures Prices

Q. Please state the purpose of your rebuttal testimony.

A. I have been asked by Florida Power & Light ("FPL" or the "Company") to respond to certain portions of the direct testimony of Dr. William Jacobs testifying on behalf of the Florida Office of the Public Counsel ("OPC"), and the direct testimony of Arnold Gunderson and Dr. Mark Cooper, both of whom are testifying on behalf of

the Southern Alliance for Clean Energy ("SACE"). Specifically, FPL has asked me to provide my opinion regarding OPC Witness Jacobs' criticism of FPL's selection of Black & Veatch/Zachry ("BVZ") to conduct preliminary construction engineering for the Company's Turkey Point 6 & 7 ("PTN 6 & 7") new nuclear project and FPL's decision not to enter into an Engineering, Procurement and Construction ("EPC") agreement in 2008, and OPC Witness Jacobs' request that the Commission direct FPL to update the Company's cost estimate for the PTN 6 & 7 project. With regard to SACE Witness Gundersen, FPL has asked me to respond to his contentions that the Company has failed to demonstrate the feasibility of the PTN 6 & 7 project due to certain schedule and cost uncertainties. I have also been asked to respond to SACE Witness Cooper's assertions that the PTN 6 & 7 project is no longer feasible due to projected decreases in electricity demand, lower natural gas and environmental compliance prices, the cost and availability of alternative resources and his analysis of the cost of to develop and construct PTN 6 & 7. Finally, FPL has asked me to respond to SACE Witness Cooper's assertion that in times of uncertainty FPL should focus its generation investment on smaller natural gas-fired generation.

Q. Please describe how the remainder of your testimony is organized.

A. The remainder of my testimony is organized into six sections. Section II of my testimony discusses my conclusions related to each witness's testimony. In Section III I respond to OPC Witness Jacobs' concerns regarding FPL's selection of BVZ to perform preliminary construction engineering for the PTN 6 & 7 project. In Section IV, I respond to OPC Witness Jacobs' request that the Commission direct FPL to update its cost estimate for the PTN 6 & 7 project. Finally, Section V of my

testimony responds to the cost and schedule uncertainties discussed by SACE Witness Gundersen, and Section VI of my testimony responds to the assertions and analysis of SACE Witness Cooper.

II. SUMMARY OF CONCLUSIONS

Q. Please summarize your conclusions regarding the direct testimony of OPC Witness Jacobs.

A. OPC Witness Jacobs has raised several concerns related to FPL's decision to retain BVZ to perform certain construction related engineering work and FPL's decision not to use an updated cost estimate for the PTN 6 & 7 project's feasibility analysis. Neither of his concerns relate to the prudence of FPL's 2007 and 2008 costs nor FPL's 2009 and 2010 cost projections. However, OPC Witness Jacobs does note that FPL should be put on notice that the decision to retain BVZ could result in higher cost for FPL's customers in the future. With regard to FPL's decision to retain BVZ, OPC Witness Jacobs is concerned that BVZ may not be a qualified to perform the work and that, by selecting BVZ to perform this scope of work, FPL is precluded from entering into an EPC agreement with a consortium of Shaw and Westinghouse at a later date. Based on Concentric's review of the project to date, selecting BVZ for this scope of work does not preclude the Company from later entering into a EPC agreement, but it does foster potential competition should FPL decide to put the construction of the PTN 6 & 7 project out to bid. In addition, BVZ was selected for this scope of work based on an internal review process and appears qualified to perform the specific scope of work for which it was retained.

Despite OPC Witness Jacobs' assertion to the contrary, putting FPL on notice today that the Company will be responsible for any additional cost that could result from this decision is exactly the type of hindsight review the Commission must reject. Results-oriented approaches to a prudence review are completely inappropriate, and OPC Witness Jacobs' recommendation, if adopted, would send a very negative message to investors and the financial community. Finally, FPL's feasibility analysis continues to rely upon the best information available to the company and provides a reasonable basis from which to determine the feasibility of the PTN 6 & 7 project.

Q. Please summarize your conclusions regarding the direct testimony of SACE Witness Gundersen in this proceeding.

A. SACE Witness Gundersen has presented a number of uncertainties related to the construction of new nuclear power plants. Each of these uncertainties is clearly recognized by FPL. In fact, SACE Witness Gundersen cites portions of the testimony of FPL Witness Scroggs which indicate that FPL is keenly aware of each of these risks. However, SACE Witness Gundersen has not presented any new uncertainties or risk faced by the project and has failed to discuss any FPL document which demonstrates that FPL has not fully assessed these risks. In addition it is my understanding that SACE Witness Gundersen did not request access to and has not reviewed any of the materials FPL produced during discovery prior to offering his opinions in his pre-filed testimony.

Q. Please summarize your conclusions regarding the direct testimony of SACE Witness Cooper in this proceeding.

A. SACE Witness Cooper states that a number of conditions related to the long-term feasibility of the project have changed since the Commission issued its

Determination of Need for the PTN 6 & 7 project. These changes include changes in the price of fossil fuels, environmental compliance, the cost to construct the PTN 6 & 7 project and the cost and availability of competing resources. Based on these changes SACE Witness Cooper contends that the prudent course of action is to eliminate the option of nuclear power for FPL's customers. It is my opinion that the approach advocated by SACE Witness Cooper in this proceeding is exactly the opposite of prudent utility management. Rather than halting the development of options during periods of extreme uncertainty, FPL and the Commission should preserve every option available to them. This strategy allows FPL to be more nimble when responding to any final climate change legislation and implementing regulations. Finally, I believe SACE Witness Cooper has erred in several of his analyses presented in his direct testimony. These errors included the use of long-dated NYMEX natural gas futures contracts to project the long-term (i.e., greater than 10 years) cost of natural gas, his application of the HHI to FPL's resource portfolio and his comparison of various nuclear construction cost estimates. Contrary to SACE Witness Cooper's position, it is my opinion that FPL has demonstrated the continued feasibility of the PTN 6 & 7 project.

III. BVZ PRELIMINARY ENGINEERING CONTRACT

Q. Please briefly describe the concern expressed by OPC Witness Jacobs' related to the BVZ contract for preliminary construction engineering.

A. Based on my review of OPC Witness Jacobs' testimony, it would appear that OPC Witness Jacobs is concerned about FPL's choice of BVZ to perform certain preliminary engineering services related to the PTN 6 & 7 project because he

believes there is a potential for this decision to ultimately increase the total project costs. Further, it would appear, based upon this section of his testimony, which OPC Witness Jacobs believes FPL has firmly committed itself to using a separate contractor for the construction of the PTN 6 & 7 project.

Q. Has FPL committed to using a separate contractor to construct the PTN 6 & 7 project?

A. No, FPL has not committed to using a separate contractor to construct the PTN 6 & 7 project. Instead, FPL has prudently sought to preserve the option to competitively bid the construction portion of the PTN 6 & 7 project at a later date. Nothing FPL has done to date would preclude the Company from pursuing an EPC agreement with the Shaw/Westinghouse consortium. In this regard, it should be made clear that FPL has also not executed an engineering and procurement agreement for PTN 6 & 7.

Q. Why is it prudent for FPL to preserve the option to competitively bid the construction of the PTN 6 & 7 project?

A. As will be discussed later in my testimony, from the beginning of the PTN 6 & 7 project, FPL has recognized the significant uncertainty that is inherent in the construction of a new nuclear generating station. Thus, FPL has sought to delay or defer entering into commitments for the PTN 6 & 7 project as long as feasible while still preserving the deployment schedule for PTN 6 & 7 project where practical. FPL's decision to retain BVZ is in accordance with this stepwise approach to project management. At this time there is no need to retain a construction contractor for the PTN 6 & 7 project to preserve the schedule. Further between today and the time at which FPL may be required to retain a construction contractor, a significant

portion of the generic detailed design of the AP 1000 will be completed. Thus an opportunity could exist to competitively bid the largest scope of work for PTN 6 & 7 project. This could create future savings for FPL's customers.

Q. How could this competitive bidding opportunity result in savings for FPL's customers?

A. To answer this question, one must first understand how construction contractors price large construction contracts. Specifically, these types of contracts are priced based on two very general inputs: the cost of the resources needed to complete the project and the risk the contractor is being asked to retain. Currently, there is a substantial amount of risk associated with entering into a construction contract for a new nuclear reactor. This is because the reactor designs are still at a preliminary stage that leaves open a number of items. As a result, a construction contractor must either push this risk onto the project sponsor, in this case FPL and its customers, or include a substantial contingency to account for possible cost and schedule over-runs that occur once the final detailed design work nears completion. In contrast, once the detailed design work is complete, a construction contractor is able to gain much greater certainty regarding the ultimate cost to construct the facility. The contractor can then more comfortably assume additional risk based upon the more detailed project design information, and price the contract with a smaller amount of contingency included. It is also important to note that no EPC vendor to date has been willing to enter into a full turn-key/fixed price EPC agreement for a new nuclear power plant.

Q. Have you observed other sponsors of new nuclear projects considering or pursuing this approach?

A. Yes I have. While OPC Witness Jacobs correctly notes that other AP 1000 sponsors have entered in complete EPC agreements, through Concentric's experience working with three sponsors of new nuclear facilities and two potential investors in new nuclear projects, I am aware of other parties that are considering separating the EP and C functions. With one exception the companies that are pursuing this approach have generally not publicly disclosed their intentions to do so in order preserve their negotiating position with each of their vendors. Luminant Energy, however, announced on July 6, 2009, that it would pursue an engineering and procurement contract with Mitsubishi Heavy Industries while reserving the option to separately contract for construction services (Contract).

Q. Have there been any public discussions of the EP and C approach to constructing new nuclear plants?

A. Yes, a recent article by Standard & Poor's succinctly described the challenges faced by nuclear developers (Prabhu). First, this article points out that the type of turnkey, lump-sum agreements which OPC Witness Jacobs is advocating in this proceeding are simply not available in the current market despite what some developers or the construction firms may be stating publicly. The article goes on to discuss the inherent trade-offs between the risk allocated to the construction firm and the price the owner is charged. In Exhibit JJR_2, I have produced a chart which is derived from this article. This chart illustrates this trade-off. However, this chart goes further to demonstrate that as more of the project risk is allocated to the EPC firm the total project cost including the owner's contingency will initially fall and then increase. This relationship results from the fact that past a certain level of risk, the

EPC firm's risk tolerance is not directly correlated with the risk tolerance of the owner. The point where this inflection occurs is the lowest total project cost.

The chart in Exhibit JJR_2 also illustrates what is expected to occur over time. That is to say the cost of the total project cost will fall as additional detailed design is complete. This results from the fact that the construction firm no longer requires as significant a contingency to cover potential cost over-runs. Similarly, the owner's contingency can also be reduced because there is greater certainty in the ultimate cost to construct the facility. However, at some point the total project cost will begin to rise as the contractor must incur additional cost to meet the project schedule.

In addition to the Standard & Poor's article discussed above, a recent article which appeared in Power Engineering International provides additional support for FPL's approach to potentially bidding the construction contract. The author of this article notes the following:

> "In general, early NRC design certification approval provides a firmer foundation for defining and pricing the scope of work. Hence, without approval, owners and EPC contractors are left with a larger portion of the scope that remains variable price and with risks that are not properly allocated."

Thus by waiting to commit itself to a single construction firm, FPL will be able capitalize on the more complete NRC design certification. This should provide FPL with an opportunity to reduce the total cost of the project by lowering the overall

contingency and fixing or firming up the price of a larger portion of the total construction scope.

Q. OPC Witness Jacobs indicates that the single EPC approach will reduce the risk to FPL. Is this true?

A. The answer to this question is unclear at this time. The basis for this statement seems to be that the Shaw/Westinghouse consortium would be willing to assume substantial risk at a reasonableness cost. However, there is evidence, including the S&P article discussed above, that the EPC contracts being offered by the Shaw/Westinghouse Consortium are not the "turn-key" approach that OPC Witness Jacobs cites or that have been routinely used for less complex construction projects. Also, my review of publicly available EPC agreements from Southern Company, Progress Energy Florida, SCANA and others indicates these agreements are likely subject to cost escalation due to changes in agreed upon cost indices.

Q. Is BVZ a qualified contractor for performing this scope of work?

A. Yes it is. FPL undertook a significant internal review process before deciding to retain BVZ for this project. As support for his concerns, OPC Witness Jacobs cites one portion of a FPL single source justification memorandum ("SSJ") which notes BVZ is a qualified engineering firm. In his testimony OPC Witness Jacobs chose to add emphasis to a particular section of this memorandum which identifies BVZ as the only qualified vendor that does not have experience with the AP 1000 design. In doing so, he has neglected the remainder of the SSJ which discusses the complete rationale for selecting BVZ on a single source basis. The remainder of the SSJ notes the current BVZ contract is a small portion of the overall development and construction efforts. By selecting BVZ at this stage, BVZ is able to gain sufficient

experience with the AP 1000 design to allow BVZ to potentially submit a competitive bid for the construction of the PTN 6 & 7 project at a time when there is less risk to FPL and its customers. This approach will allow FPL to further foster a competitive environment for the PTN 6 & 7 construction contract. However, FPL has not selected BVZ to construct the PTN 6 & 7 project by entering into the existing contract.

Q. OPC Witness Jacobs notes that he is raising his concerns at this time so that it is clear that the potential for increased costs was identified without the benefit of hindsight. Do you agree with this statement?

A. No I do not. While I completely agree with OPC Witness Jacobs that it is vitally important the Commission adopt an approach to prudence reviews that clearly excludes hindsight to determine the prudence of the Company's decision, OPC Witness Jacobs' approach does just the opposite.

OPC Witness Jacobs' approach is essentially one in which he wants to wait to see what the future EPC costs are, and then he will determine whether FPL's current contracting practices are prudent. That is not a proper application of a prudence determination and does not reflect the real world decision-making that FPL must perform. First, it is important to understand that costs are not prudent or imprudent, decisions are. Second, the prudence standard in regulation considers decisions based on what was known, or should have been known, at the time the decision had to be made, not based on the future outcomes of a decision. Dr. Jacob's position on the prudence of FPL's decision to contract with BVZ is that it is

too soon to tell. That type of results-oriented regulation is exactly what a properly applied prudence standard is meant to avoid.

FPL's decision to contract with BVZ is unquestionably prudent based on the circumstances surrounding the decision. FPL carefully made this decision to heighten competition for future contracting for PTN 6 & 7, with the goal of producing lower costs for FPL's customers. This approach preserves significant optionality and flexibility, while keeping the project on schedule. This approach to contracting, which splits the EPC contract into separately bid components, is being used by other energy companies for major projects and can be a highly cost-effective contracting strategy when a project, its technology and design are undergoing a lengthy development process. FPL's decision could conceivably lead to higher costs under some circumstances, but it is much more likely to be beneficial. Based on everything that is known now, I concur that it was the right decision, and its prudence must be judged based on currently available information. Dr. Jacob's "wait and see" attempt to recast the long-established prudence standard in regulation should be flatly rejected. I can think of no more dangerous and harmful message to investors and the broader financial community than one announcing that the Commission was adopting a "wait and see" approach to recovery of prudently incurred costs.

IV. OPC WITNESS JACOBS' FEASIBILITY ANALYSIS CONCERN

Q. Has OPC Witness Jacobs expressed any concerns related to FPL's feasibility analysis?

A. Yes he has. Specifically, OPC Witness Jacobs is concerned that FPL did not update the Company's cost estimate for developing and constructing the PTN 6 & 7 project. OPC Witness Jacobs does not express any concerns related to the remainder of FPL's feasibility analysis.

Q. Why has FPL not updated the cost estimate for the PTN 6 & 7 project that was utilized in the Company's feasibility analysis in this proceeding?

A. FPL's feasibility analysis continues to be based upon a wide range of total construction costs. This wide range allows FPL to evaluate the feasibility of the projects under a variety of economics conditions and price fluctuations. FPL did not update the cost estimate for the PTN 6 & 7 project this year because the current estimate continues to represent the best information available to the Company and is appropriate for the purpose of the feasibility analysis. As was discussed in my direct testimony and will be discussed later in my testimony, FPL's current cost estimate continues to compare favorably with similar projects around the country. Additionally, there has been significant volatility in the price of several of inputs to a cost estimate for any new nuclear project. As a result, any update at this time does not necessarily provide more accurate future construction cost estimates. Finally, it is important to remember that many of the commodity inputs that are required to construct a new nuclear plant are the same commodities that are required to construct most other generating resources. However, a new nuclear plant will require a far greater quantity of these commodities. Thus to the extent that commodity prices have fallen since FPL completed its cost estimate, the price

declines are likely to only enhance the economic advantage of a new nuclear plant holding all else equal.

Q. Do you believe it is reasonable for FPL to continue to use the Company's existing cost estimate when performing the feasibility analysis for this proceeding?

A. Yes, I fully endorse FPL's decision in this specific case. As will be discussed in Section VI below, the cost to construct all types of generating resources is generally believed to have declined since 2008 (Marn). Further, most analysts believe new nuclear plants have been the generation type most affected by the recent downtrend in prices. Thus FPL's cost estimate, which was developed in mid-2007, likely represents a mid-point in the current construction cycle. That is not to say; however, that a return to economic growth will not later increase the cost to construct the facilities. Nonetheless, it is conservative and prudent to continue to use the original cost estimate at this time to evaluate the continued feasibility under the current recessionary, macroeconomic conditions.

V. SACE WITNESS GUNDERSEN AND PTN 6 & 7 COST AND SCHEDULE UNCERTAINTY

Q. Are you aware that SACE has raised certain cost and schedule uncertainties related to the PTN 6 & 7 project in this proceeding?

A. Yes I am. SACE Witness Gundersen has filed direct testimony on behalf of SACE regarding certain cost and schedule uncertainties that he has identified in this proceeding.

Q. Please summarize the uncertainties that SACE Witness Gundersen discusses in his direct testimony.

A. In his direct testimony, SACE Witness Gundersen addresses four "obstacles" to completing the PTN 6 & 7 project. These obstacles included the following:

1. "Because the 10 CFR Part 52 licensing process for the AP 1000 is brand new and has never been applied before, there is definite scheduling uncertainty due to licensing delays
2. Hurricanes Katrina and Rita demonstrated that major construction projects are subject to delays due to the worldwide demand for construction materials and skilled labor. It is very likely that those nuclear construction materials in highest demand will face shortages and procurement delays given the great number of nuclear power plants proposed for construction in the Southeastern U.S.
3. The nuclear industry as a whole is facing a labor shortage due to the limited qualified individuals capable of performing this work
4. Building nuclear power plants is a complicated construction process in which scheduling delays, lengthy construction times and delayed operation is routine." (4)

Obstacles two and three appear to be essentially the same point regarding potential shortages of materials and labor.

Q. Based upon your review of SACE Witness Gundersen's direct testimony, have you identified any new uncertainties in his testimony of which the Commission was not made aware during the Determination of Need proceeding or the 2008 NCRC review cycle?

A. No I have not. As was discussed extensively during the Determination of Need proceeding, the prospect of developing and constructing a new nuclear facility is fraught with uncertainty. These uncertainties include the ultimate total cost to construct the facility, whether the facility can be constructed in the time frame projected by the project sponsor, the NRC and state licensing processes and the potential for cost recovery. Indeed, both my testimony and the testimony of FPL Witness Scroggs in that proceeding list the numerous uncertainties inherent in new nuclear construction programs. SACE Witness Gundersen attempts to reintroduce those uncertainties in this proceeding despite the fact that the Commission has already considered these uncertainties in its Determination of Need for PTN 6 & 7.

Q. SACE Witness Gundersen discusses the new NRC licensing process promulgated in 10 CFR Part 52. Has anything changed in this process since the Commission issued a determination of need in 2008?

A. No, the new combined operating licensing process has remained the same since the Commission issued its Determination of Need in March 2008. Since that time, a number of new Combined Operating License Applications ("COLAs") have been submitted to the NRC including a COLA for the PTN 6 & 7 units. These COLAs have been docket by the NRC and are progressing through the NRC review processes. As was expected, the process has included hundreds of requests for additional information ("RAIs") submitted by the NRC to applicants and several groups with varying interests have chosen to intervene in the review process. This is similar to the prediction by Moody's Investors Service which stated the following in October 2007:

"Although we acknowledge the NRC licensing process is more enhanced today than it was in the 1970s and 1980's, we still believe that the regulatory approval process associated with pursuing a new nuclear facility will emerge as a potential constraint...However, this new regulatory approval process remains untested and therefore deserves careful attention" (New 7).

One important development related to the PTN 6 & 7 licensing process since 2007 is that the NuStart consortium has elected to shift the reference plant for the AP 1000 from the Tennessee Valley Authority's ("TVA") Bellefonte site to Southern Company's Plant Vogtle site. As SACE Witness Gundersen notes, the NRC was notified of this decision on April 28, 2009. However, SACE Witness Gundersen fails to note the reasons for this change which include that TVA is reconsidering whether to complete two partially completed plants at the Bellefonte site rather than or in connection with moving forward with the new reactors (Flessner). In addition, this change has been advocated by former NRC Commissioner Dale Klein due to the more advanced stage of planning for the Vogtle units. In addition, Southern Company had previously filed for and is expected to receive an Early Site Permit for the Vogtle site. If anything, this change should facilitate the licensing process, as it will ensure that the reference application for the AP 1000 reactor technology is of a very high quality.

Q. Has the NRC stated that it has concerns with the COLA review process?

A. Yes, the NRC has stated for some time that the COLA process is a challenging undertaking. These challenges include the sheer number of applications the NRC has received and training a relatively new review staff. In addition, as SACE Witness

Gundersen notes, the NRC is concurrently reviewing new or amended design certifications for multiple reactor designs. As support for his arguments, SACE Witness Gundersen cites a recent NRC letter and emphasizes a statement in that letter which indicates that the licensing process is not proceeding as planned. However, he fails to convey the overall message of this letter which indicates the NRC is actively managing the licensing process and taking steps to mitigate schedule risks.

Q. What is FPL doing to manage the challenges associated with the COLA review process?

A. First, it is important for the Commission to note that FPL is in a somewhat advantageous position by having submitted its COLA subsequent to sixteen other applications. Thus FPL has and will continue to have the opportunity to learn from the challenges faced by applicants which submitted their applications earlier in the process. In this regard, FPL has taken note of the challenges faced by other applicants and delayed its application submittal this year in order to address concerns that were being raised in another applicant's COLA. FPL also has a number of internal controls and processes in place to manage each of the challenges associated with the NRC's review. These processes include regular meetings to discuss the review process, and issuing a process to its COLA contractor, Bechtel, to ensure that the NRC's RAIs issued to other applicants are being monitored and evaluated for their impact on the PTN 6 & 7 COLA.

Q. Has SACE Witness Gundersen identified any additional sources of delays for the PTN 6 & 7 project?

A. Yes, SACE Witness Gundersen identified certain transmission and ground water concerns related to the PTN 6 & 7 project. However, it is unclear to me why SACE Witness Gundersen believes these concerns have changed since the Commission issued its Determination of Need, and why he believes these uncertainties have not been addressed by FPL. The PTN 6 & 7 project has always been sited at the Company's Turkey Point site and the number of transmission options available to the Company has existed since that time. In addition, FPL considered both of these concerns while undertaking an extensive site selection study which was discussed in Concentric's internal control review from April 2009 and was filed with the Commission as Exhibit SDS_7 in this proceeding. Similarly, FPL is undertaking a detailed study of the various transmission options from the site that will allow the additional energy generated by the PTN 6 & 7 project to be delivered to FPL's customers. Finally, SACE Witness Gundersen does not cite any FPL document produced during discovery as support for his opinion that FPL has not adequately accounted for potential delays in the PTN 6 & 7 project planning process.

Q. SACE Witness Gundersen states that any delays as a result of his schedule uncertainties would result in increased costs to FPL's customers. Has FPL included contingencies in its schedule and cost estimates?

A. Yes, FPL has considered the need to include a contingency in its cost estimate. However, development and construction of a new nuclear plant is an incredibly complex undertaking and the potential does exist that the PTN 6 & 7 project will exceed these contingencies. Nonetheless, FPL has followed appropriate industry guidelines and practices when calculating its contingency factors. This contingency

factor was fully discussed in my testimony in the 2008 NCRC proceeding and was again addressed in my direct testimony in this proceeding.

Q. Please discuss SACE Witness Gundersen's concerns related to the demand for construction materials and skilled labor.

A. SACE Witness Gundersen states that "Hurricanes Katrina and Rita demonstrated that major constructions projects are subject to delays due to the worldwide demand for construction materials and skilled labor." His testimony never expands on why he believes these two unfortunate events demonstrated these shortages. Nonetheless, he states that international demand for nuclear materials and qualified workers create the possibility for delays for the PTN 6 & 7 project. SACE Witness Gundersen does not, however, state why he believes FPL has not anticipated, evaluated or mitigated the possibility of labor and material shortages. In fact, he does not cite any document produced in discovery to support his opinion that FPL has not considered these uncertainties.

Q. Are there reasons, other than Hurricanes Rita and Katrina for the material shortages that SACE Witness Gundersen notes?

A. Yes, I discussed in the Determination of Need proceeding and the 2008 NCRC Review proceeding, the market for nuclear quality materials is constrained by the limited number of suppliers qualified to supply these material and international demand for these products (26-27). Interestingly, SACE Witness Gundersen relies upon the same article I cited on page 27 of my direct testimony in the 2008 NCRC Review proceeding. Additionally, robust global economic growth has spurned many countries including China and India to advance their nuclear power construction programs.

Q. Do you agree with SACE Witness Gundersen's opinion that FPL has not anticipated the potential for shortages in the materials required to complete the PTN 6 & 7 project?

A. I completely disagree with SACE Witness Gundersen's opinion. FPL is actively monitoring the market for the critical construction materials required to complete the PTN 6 & 7 project, and entering into reservation or supply agreements as market conditions necessitate such agreements. For instance, in keeping with the guidance from the DOE which is cited by SACE Witness Gundersen, FPL has entered into a reservation agreement with Westinghouse to secure manufacturing space for the reactor vessel forgings for the PTN 6 & 7 project. FPL is also regularly communicating with Westinghouse regarding the current state of the supply chain necessary to develop and construct the AP 1000 reactors. It would be difficult for SACE Witness Gundersen to be aware of FPL's efforts in this regard without first reviewing the extensive documentation FPL produced in discovery.

Q. Do you agree with SACE Witness Gundersen that FPL has not anticipated labor shortages?

A. No I do not. It is widely recognized by the nuclear industry that a significant number of the industry's workers are eligible to retire in the next five years. This is a critical challenge for both existing and new nuclear power plants of which the Company has been aware for a number of years. SACE Witness Gundersen acknowledged in his direct testimony that FPL as a Company is well aware of these challenges by citing remarks of a senior FPL executive at a recent industry conference. As a result, the company has undertaken a number of efforts to help mitigate this risk at both its existing nuclear power plants and the PTN 6 & 7 project.

In its April 2009 Review of FPL's Internal Controls, Concentric also recommended that the Company develop contingency plans which address the possibility of a labor shortage. Despite each of these activities, SACE Witness Gundersen opines that FPL has not anticipated labor shortages, but does not cite any FPL documents produced during discovery as support for his arguments.

Q. What is FPL doing to manage potential labor shortages?

A. FPL's first step in addressing potential labor shortages is a staffing plan that monitors the current workforce needs of the project and indicates when a new hire is anticipated. The PTN 6 & 7 project can then seek qualified candidates from a number of labor pools including internal candidates, external direct hires or staff augmentation labor. As one of the largest nuclear power operators in the Country, the Company also enjoys an advantage when recruiting personnel to its nuclear facilities because potential employees see substantial opportunities for advancement within the Company. To address the need for new workers in the power industry in general, FPL has established a cooperative program with the Homestead campus of Miami Dade College (Valdemoro). This program provides new workers with training in one of three disciplines and places them at the Company's existing power plants at the Turkey Point site. Finally, FPL's Internal Control organization monitors the manhours expended by the PTN 6 & 7 contractors to identify potential trends in the number of resources assigned to the project. When a negative trend that could affect the PTN 6 & 7 schedule is identified, FPL works closely with the vendor to make certain adequate resources are assigned to the PTN 6 & 7 project on a going forward basis.

Q. What concerns related to the PTN 6 & 7 construction schedule has SACE Witness Gundersen raised?

A. SACE Witness Gundersen appears to be concerned that the pattern of design delays and construction delays that occurred in the 1970's and 1980's will be repeated during the current construction program. As support for his argument, SACE Witness Gundersen states that the AP 1000 is a brand new design that has not been constructed, and he cites a New York Times article which discusses construction difficulties faced by the sponsor of new nuclear plant under construction in Finland. SACE Witness Gundersen does not address why he believes FPL has not evaluated and/or mitigated these concerns.

Q. Has FPL undertaken any efforts to address the risk of delays during construction of the PTN 6 & 7 project?

A Yes it has. As discussed in my direct testimony, FPL's construction schedule was originally developed using an industry standard, known as the critical path method, and an often-used software program which facilitates updates to this schedule. Once completed, the PTN 6 & 7 schedule was reviewed and vetted internally. In addition, FPL has asked BVZ to further review the schedule. The PTN 6 & 7 schedule will continue to be subject to various risks going forward, but FPL has taken appropriate steps to address the risk SACE Witness Gundersen has identified and to address new risks as they may emerge.

Q. What is the status of other nuclear power plants under construction around the world?

A As shown on Exhibit JJR_3, which is attached to this rebuttal testimony, a number of countries have embarked on nuclear construction projects. In addition to the

Okiluoto-3 reactor that SACE Witness Gundersen cites in his direct testimony, there are two AP-1000 projects under construction in China along with several other projects around the world. While concerns may arise later, the AP1000 projects have progressed relatively smoothly. In addition, Japan has actively and relatively successfully constructed nuclear power plants since the 1970's. Clearly, not every reactor under construction has encountered the number and magnitude of problems faced by the Okiluoto-3 reactor. Indeed, the owner of Okiluoto-3 was not discouraged by the construction problems faced by the project and has since applied to the Finnish nuclear authority for permission to construct a fourth plant at the Okiluoto site (Application). In addition, FPL and the rest of the U.S. nuclear industry will have the opportunity to learn from the lessons at these earlier projects by participating in global industry partnerships and information sharing networks.

VI. SACE WITNESS COOPER AND THE PTN 6 & 7 FEASIBILITY ANALYSIS

Q. Are you aware that SACE Witness Cooper has filed direct testimony in this proceeding?

A. Yes I am aware that SACE Witness Cooper has filed direct testimony in which he discusses a number of uncertainties related to the PTN 6 & 7 project. He does not comment on any of FPL's 2007, 2008 or 2009 expenditures.

Q. Please summarize the testimony SACE Witness Cooper.

A. In his direct testimony SACE Witness Cooper asserts a strategy for dealing with uncertainty in FPL's and the State of Florida's resource planning process. In addition, SACE Witness Cooper asserts a number of changed regulatory, financial,

market and technical conditions which challenge the long-term feasibility of the PTN 6 & 7 Project. These changed conditions include:

- Declining customer demand
- Recently falling natural gas prices
- Potential renewable energy and energy efficiency standards
- The potential cost of carbon emissions
- Cost of nuclear cost construction
- The potential cost and available of alternative resources
- The state of financial markets
- Investor perceptions of nuclear construction

Q. What is your opinion of the uncertainty related to the PTN 6 & 7 project?

A. If completed, the development period for PTN 6 & 7 will exceed a decade. During this time, electricity demand, fuel prices and environmental compliance costs will fluctuate substantially as economic cycles progress and new policies are implemented. As has been discussed previously, these fluctuations and new policies are sources of tremendous cost and schedule uncertainty for the PTN 6 & 7 project.

Q. Are there similar uncertainties for renewable energy and energy efficiency resources?

A. Yes. For example, it is often suggested that there could be significant changes in the cost, performance, and reliability of renewable energy alternatives in response to greater demand. Others predict that new renewable generating technologies, such as ocean current/wave/thermal resources, will be commercialized and provide a clean, affordable means of producing electricity. The future availability, cost and

performance parameters of these alternatives are inherently uncertain, which adds to the challenges facing electric resource planners. Cost is also not the only potential factor that could limit penetration of these resources; permitting issues for such installations are frequently a major issue.

Q. SACE Witness Cooper states that in periods of uncertainty, utilities should acquire assets with short lead times that closely match demand rather than incurring large capital costs, is this true?

A. SACE Witness Cooper's statement is partially correct. However, he fails to make one critical distinction. It is true that in times of extreme uncertainty such as now, a prudent utility should make investment decisions that enhance its overall flexibility. This includes preserving options which are inherently more flexible than fixed assets. The option to construct new nuclear power plants is one such option. Because of the lead time associated with a new nuclear power plant, failing to take steps at this time to pursue a new nuclear plant would effectively eliminate the role of nuclear as an option within the next decade for FPL and its customers.

Ironically, SACE Witness Cooper forgets his own admonition about the importance of preserving flexibility and the need for regular reviews of a utility's resource plan when he evaluates FPL's development of the nuclear option for PTN 6&7. In his direct testimony, SACE Witness Cooper states the following:

> "As very large investments that take a long time to construct and produce large quantities of electricity, they [nuclear plants] represent a huge quantity of inflexible service costs. These investments are

incapable of responding to change. They are inherently "go-no-go" decisions that should be made before costs are incurred." (7)

I am in complete disagreement with SACE Witness Cooper on this point, at least as it relates to FPL's nuclear strategy. FPL is preserving the nuclear generation alternative for its customers through a carefully conceived and well executed step-by-step approach. It has sought to preserve optionality at the lowest possible cost that permits the project to meet the need identified. FPL has wisely chosen to learn from the experience of others and avoid if at all possible an early "go-no-go" decision that would lock in a decision to build PTN 6 &7.

SACE Witness Cooper's view that a "go-no-go" decision should be made before costs are incurred is reminiscent of the worst examples of resource planning from the 1980s, when utilities were locked into proceeding with nuclear projects, without ongoing reviews, and billions of dollars were wasted on projects that were eventually cancelled. A step-by-step approach, with frequent re-examination and review, and prudent expenditures to develop, evaluate and preserve this resource option, is unquestionably better than the wasteful "go-no-go" approach.

Q. Is FPL's development approach to the PTN 6 & 7 consistent with this view?

A. Yes, FPL is pursuing a stepwise process to preserve the option to build two new nuclear power plants. This strategy involves delaying upfront customer expenditures as long as practical to meet the project's development schedule and undergoing the Commissions annual feasibility review as part of the NCRC process. This process allows both FPL and the Commission to evaluate new information on a timelier basis, but also allows the Commission to defer judgment until more definite

information is available. Further, this approach does not prevent the Commission or FPL from simultaneously pursuing all other resource options, including renewable energy and energy efficiency resources, which may become available during the PTN 6 & 7 project's useful life.

Q. What are the implications of SACE Witness Cooper's strategies if they were pursued?

A. SACE Witness Cooper advocates that FPL plan to invest in short lead time power plants such as natural gas power plants that can be developed on relatively little notice. His position is presumably based on his belief that sufficient new renewable resources and energy efficiency may become available to meet FPL's entire need for new resources. For reasons discussed later in this section of my testimony, such a strategy represents a gamble on the development of these technologies. If that gamble does not prove correct, however, FPL and its customers would be forced to build the natural gas assets SACE Witness Cooper is advocating. These assets will further subject FPL's customers to fluctuations in the price and availability of natural gas, which are very substantial already. Unlike the New England region with which SACE Witness Cooper is likely familiar, Florida has a limited number of options for transporting natural gas to the region. Thus the risk of hurricane related supply disruptions could have tremendous implications for FPL and its customers. It would not be prudent for FPL to pursue such a speculative investment strategy in times as uncertain as these. In contrast to SACE Witness Cooper's strategies, FPL's strategy will still enable the utility to vigorously pursue any viable energy efficiency and renewable energy resources which may become available while preserving the option to construct PTN 6 & 7 on the earliest practical deployment schedule.

Q. Do you agree with SACE Witness Cooper's opinion that the recent shift in consumption is permanent and signals slower growth in the future?

A. No. As a preliminary matter, SACE Witness Cooper offers no support for his opinion that the recent shifts in consumer behavior will become permanent. It is critically important to note, however, that nuclear is a long-term (i.e. 40-60 year) investment. It would not be prudent to base such a resource planning decision on near-term economic cycles which occur during the facilities' development, construction and operational periods. Nonetheless, it does seem reasonable that for the very near term, future economic growth will be slowed from projections that were offered prior to 2008. It is currently very uncertain how long this reduced growth will continue and how dramatic the reductions will be in that period. I have observed several different predictions that range from a period of "super-growth" at the end of the recession to long-term economic stagnation. From past experience it seems likely medium term and longer-term growth will fall somewhere in between these extremes.

Q. Has FPL experienced a reduction in electricity demand since the 2008 feasibility analysis?

A. Yes, similar to several other utilities in the U.S., FPL has experienced a significant drop in demand since 2008. This reduction results from an ongoing economic recession.

Q. Did FPL account for this reduction in demand in the load forecast the Company used in its annual feasibility analysis?

A Yes, FPL has clearly accounted for this demand reduction in its load forecast. For instance, in the year the first PTN 6 & 7 reactor is expected to enter commercial

service, FPL has reduced its demand forecast by more than 11%. Further to that reduction, however, are the reductions that FPL has projected after 2020. For instance, FPL's projected demand in 2035 is more than 16% lower than the 2008 forecast, and FPL's projected demand in 2040 is more than 20% lower than the 2008 forecast.

Q. If FPL's load forecast has decreased so dramatically, why hasn't the Company's projected reserve margins increased commensurate with the decrease in load?

A. As the Commission noted in its Determination of Need Order, even assuming reduced or no growth for a period of five years or more, FPL has a need for new capacity in excess of the PTN 6 & 7 reactors. FPL's lower demand forecast has simply reduced the increment of new capacity that was in excess of the PTN 6 & 7 project. As the Commission pointed out in its order in that proceeding, FPL intended to meet this additional capacity need with new gas-fired, combined cycle power plants, but has deferred the need for certain of these plants to account for the reduced demand. This clearly demonstrates why it is important to preserve the option to construct the PTN 6 & 7 projects at this time. As SACE Witness Cooper accurately points out, alternative resources have much shorter lead times and can be pursued simultaneously with the new nuclear power plant. Meanwhile, other incremental resources can be used to match fluctuations in the Company's load forecast. However, to choose to cease nuclear power development efforts at this time would force FPL to pursue natural gas as the only currently available alternative for baseload generation.

Q. Why are the renewable resources for which SACE Witness Cooper advocates not suitable alternatives for the capacity need which may be met by PTN 6 & 7?

In order to be more widely deployed in Florida in the longer term, many of these renewable resources would require significant reductions in cost and leaps in efficiency. Also, most of these renewable resource options are unable to meet baseload generating needs, but are better positioned as intermediate and peaking resources that enable a utility to replace its gas- and oil-fired generation. As an example of the viability and availability of renewables in Florida, FPL recently issued a Request for Proposals ("RFP") for energy and capacity from new renewable energy facilities. Unfortunately, none of the responses to this RFP were below FPL's avoided costs of energy and capacity.

Q. What role would a national renewable energy standard play in determining future resource planning decisions?

A. First, it is important for the Commission to note that no proposed national legislation has become law. The version of climate change legislation that is being considered by the Senate is substantially different than that passed by the House. This uncertainty was reinforced in a recent webinar sponsored by SACE in which Michele Boyd stated she anticipated a "enormous battle" to reconcile the bills passed in each house of the U.S. Congress (Boyd). In addition, there is currently no certainty as to how this legislation will be implemented once respective agency regulations are issued. Thus there is extraordinary uncertainty related to final standards that will need to be met by FPL. Nonetheless, virtually every analyst is in agreement that some form of climate change legislation will be implemented in the

coming years and this legislation is very likely to include some form of a national renewable electricity standard which would require each utility to procure a portion of its electricity sales from renewable resources, including nuclear. As SACE Witness Cooper states, this would clearly have some impact on the need for non-renewable resources. However, SACE Witness Cooper has failed to note H.R. 2454, the American Clean Energy and Security Act, excludes nuclear from the total electricity sales baseline to which a utility's renewable purchases are compared. That is to say that new nuclear is effectively exempt from the national renewable energy standard, counting as neither a renewable or non-renewable resource. Furthermore, SACE Witness Cooper fails to mention that many political commentators are speculating that new nuclear may ultimately be included as a renewable resource. Such a measure, if included in the final legislation would further improve the prospects of new nuclear power plants.

Q. In the absence of viable renewable resources would vigorously pursuing demand side management and demand reduction (DSM) programs eliminate the need for future supply side resources?

A. First, I note that the appropriate DSM goals are an issue currently before the Commission in Docket No. 080407-EG. Nonetheless, these programs should be vigorously pursued, and FPL is recognized throughout the electric utility community as being one of the most successful utilities in the nation in achieving cost-effective DSM programs. However, there is no likelihood that even the successful utilization of all of the available cost-effective DSM programs can do anything more than slow the demand growth that the system is facing, and thus will not eliminate the need for new non-GHG-emitting baseload resources in order to both meet demand and

mitigate GHG emissions. In response to this, Dr Cooper contends that as much as 20% of FPL's load can be met with energy efficiency. However, the study which SACE Witness Cooper cites as support for this argument contains a number of assumptions regarding the penetration levels that can be achieved for energy efficiency without citing any analysis to support these assumptions (Elliot 8). In addition, SACE Witness Cooper neglects to mention that this report lists a number of new polices, regulations and legislation that must be implemented to achieve these goals (26-27).

Q. Does SACE Witness Cooper raise any concerns related to FPL's natural gas forecast?

A. Yes, SACE Witness Cooper states he believes FPL's current natural gas forecast is too high given recent market predictions. For support for his argument, SACE Witness Cooper argues that a stream of prices for NYMEX futures on a single day provides definitive evidence of natural gas price expectations through 2020. As explained below, this analysis is not appropriate due to the lack of liquidity in longer maturity futures contracts and the fact SACE Witness Cooper has relied upon a single day's data as a projection of future prices.

Q. Do you have any observations related to SACE Witness Cooper's analysis?

A. While I generally agree that natural gas prices have fallen since FPL's natural gas price forecast was developed, I am concerned with what SACE Witness Cooper asserts is a reasonable projection of the market. In his direct testimony, SACE Witness Cooper notes that the NYMEX futures contract for the Henry Hub has been a reasonable projection of Florida City Gate prices. To support this assertion, SACE Witness Cooper produces an exhibit which plots Florida's natural gas prices

against the NYMEX futures contract. He then goes on to state that the exhibit demonstrates that the NYMEX futures have been a near perfect predictor of natural gas prices for FPL's natural gas price. My concern with SACE Witness Cooper's analysis is that he appears to rely on what is known as "front month" contracts to support his contention that the NYMEX Henry Hub futures contract is a reasonable projection of Florida natural gas prices, but then uses what are known as "long dated contracts" to establish his contention that FPL's projection of natural gas prices is too high.

Q. Please explain what you mean by "front month" and "long dated contracts."

A. Generally, front month contracts are NYMEX-traded agreements that provide the purchaser the right to purchase natural gas at a specified price in the months immediately following the current month. These contracts change hands quite often due to the relatively short time period before they expire and the widely available and relevant market information. Long dated contracts, in contrast, allow a buyer to purchase natural gas at a time further in the future. Currently, these contracts are available until December 2021. However, the long dated contracts trade very infrequently and are typically not relied upon by analysts as projections of future prices.

Q. Why is it not appropriate to use very long dated contracts to project long-term natural gas prices?

A. Very long dated contracts, such as those more than 18-24 months out, cannot be relied upon to predict future natural gas prices because they generally trade sparingly and are purchased as insurance policies for companies whose financial performance is tied to the price of natural gas in some manner. Exhibit JJR_5 is table which

depicts both the trading volume and number of open contracts, known as the open interest, for each contract maturity. Additionally, SACE Witness Cooper's testimony relies upon the price of these contracts as reported on a single day. He makes no effort to illustrate any trends in these prices. FPL Witness Sim provides the rationale behind FPL's current natural gas forecast and why it is appropriate basis from which to perform the feasibility analysis.

Q. Does SACE Witness Cooper also raise concerns related to FPL's cost estimate for the PTN 6 & 7 project?

A. Yes, SACE Witness Cooper notes in his direct testimony that FPL's current range of cost estimates is in the bottom quartile of comparable cost estimates. To support his assertion, SACE Witness Cooper relies on a table of nuclear cost estimates that he appears to have developed for an outside report he published in June 2008 (Cooper "Economics" 23). This report discusses three categories of cost estimate as classified by SACE Witness Cooper; "aspiration (hype), recommendation (hope), and projection (reality)" (17). In addition, SACE Witness Cooper's report, which includes virtually the same table presented in his direct testimony, indicates that several of the estimates on which he relies for his statements "are not very well explained or documented, while a few are analyzed in great detail" (22). Thus it would seem that SACE Witness Cooper's analysis is premised on information for which he likely does not have all of relevant details necessary to make his comparison. Indeed, SACE Witness Cooper even refers to the information on which earlier cost estimates may have been based as "part of a catechism whose basic function was to answer infidels and sustain the faith of the converted" (33).

Q. Why is SACE Witness Cooper's analysis not the appropriate basis from which to perform a cost comparison?

A. SACE Witness Cooper's cost estimate analysis is an entirely inappropriate comparison due to the fact that he has failed to account in any way for the differences between reactor designs or recent trends in commodity prices. Both of these details are critical to making a reasonable comparison between various projects. Westinghouse, for example, has stated that the AP 1000 is expected to use approximately 40% less concrete then a comparable four loop Westinghouse pressurized water reactor from the last wave of construction (Westinghouse). Very basically, some newer designs, such as the US EPR and others, rely upon the conventional safety systems from these earlier plants as the basis for their new designs and then enhance the safety of these earlier plants. It can reasonably be assumed that commodity savings cited by Westinghouse is likely to apply to these plants as well. SACE Witness Cooper relies upon a number of these generic cost estimates and cost estimates for at least three US EPR projects, and one ABWR project which may or may not be provided on comparable economic and financial term as the basis for his cost estimate. I have also noted that SACE Witness Cooper relies upon at least one illustrative example for his argument. In Exhibit MNC-8, SACE Witness Cooper cites a 2008 Moody's Investors Service report for one of his cost estimates, but he does not address the explanatory statement on Page 6 of this report which states "this $7.5 billion [referring to the total cost estimate for a new nuclear power plant] estimate is for illustrative purposes only and does not represent a $/kW capacity figure."

Q. Has Concentric produced its own comparison of cost estimates in this proceeding?

A. Yes, Concentric produced a comparison of various cost estimates from all of the developers of AP 1000 projects in the Southeast United States as Exhibit JJR_3 in my direct testimony filed on March 2, 2009 in this proceeding. This comparison demonstrated that FPL's cost estimate is within a reasonable range when compared to similar projects.

Q. SACE Witness Cooper asserts that the breakeven analysis FPL has used to ascertain the PTN 6 & 7 project's continued feasibility is a contrived and inappropriate means to evaluate feasibility. Have you seen this analysis used elsewhere?

A. Yes this type of analysis is routinely used in financial analysis and is known as a "stress test." Often these tests are used for the very purpose for which it is being used in this proceeding, determining whether a project continues to be economic given a particular set of assumptions. Concentric often utilizes this test when performing valuations of power plants for financial investors.

Q. Why are financial investors interested in the results of this type test?

A. Concentric's clients have requested this analysis to determine at what price the plant ceases to be economic or at what point the investment begins to pay off for the investor.

Q. Are there other considerations related to the PTN 6 & 7 project's feasibility analysis which are addressed by SACE Witness Cooper?

A. Yes, SACE Witness Cooper also briefly discusses whether FPL can further diversify its generating portfolio by pursuing renewable energy resources and energy

efficiency. He bases his discussion upon the Herfindahl-Hirschman Index ("HHI"), a well known indicator of market concentration.

Q. Did SACE Witness Cooper appropriately consider the HHI in this instance?

A. SACE Witness Cooper has failed to appropriately consider the HHI. In his discussion of the HHI, SACE Witness Cooper provides three scenarios under which FPL would invest in a variety of resources. SACE Witness Cooper then provides an HHI for each of the three portfolios and concludes that if FPL invested more in renewable energy and energy efficiency it would have a more diverse portfolio. This is not a startling conclusion. The HHI considers both the market share of a firm or resource and the number of firms or resources in the market. Thus the HHI will always fall by simply adding a new firm or resource regardless of the amount of market share garnered. In other words, one could achieve a similar result by dividing nuclear into two separate resources known as existing nuclear and new nuclear, or by adding any other resources as a new category. The opposite is also true. Should SACE Witness Cooper not separate energy efficiency into a third category, but included in the other category with the same market share used in his example, the calculated HHI would not fall as dramatically as he has portrayed it. The final demonstration of this would be to separate efficiency into every technology that produces an energy savings. Although each of these technologies would have an extremely small market share, the presence of a number of additional resources in the market would serve to reduce the level of concentration in the market.

Q. Does this conclude your testimony?

A. Yes it does.

BEFORE THE
FLORIDA PUBLIC SERVICE COMMISSION

In re: Nuclear Power Plant)	DOCKET NO. 090009-EI
Cost Recovery Clause)	FILED: September 4, 2009

ERRATA SHEET

TESTIMONY OF JOHN J. REED, MARCH 2, 2009

PAGE#	LINE #	CHANGE
9	Footnote 5	Merge footnote 6 into footnote 5, so that footnote 5 reads as follows: "Staff recommendation in Docket 060658-EI – Petition on behalf of Citizens of the State of Florida to require Progress Energy Florida, Inc to refund customers $143 million, citing Docket 820001-EU-A, In Re: Investigation of Fuel Cost Recovery Clauses of Electric Utilities (Gulf Power Company – Maxine Mine)."
9	Footnote 6	Delete
9	Footnote 7	Renumber as Footnote 6
10	Footnote 8	Renumber as Footnote 7
10	Footnote 9	Renumber as Footnote 8
15	Footnote 10	Renumber as Footnote 9
20	Footnote 11	Renumber as Footnote 10
21	Footnote 12	Renumber as Footnote 11
46	Footnote 13	Renumber as Footnote 12
48	Footnote 14	Renumber as Footnote 13

REBUTTAL TESTIMONY OF JOHN J. REED

PAGE#	LINE #	CHANGE
9	15	"notes the following" to "notes the following (Haarmeyer)"
		ADD TO BIBLIOGRAPHY
39		"Haarmeyer, David, "Nuclear New Build Precondition: Cost Visibility and Predictability: Owners must take a more active, informed and disciplined approach to managing contract and project execution", Power Engineering International. September 2008."

DOCUMENT NUMBER-DATE
09257 SEP-4 09
FPSC-COMMISSION CLERK

BY MS. CANO:

Q. Are you also sponsoring exhibits to your testimony?

A. Yes.

Q. Do those consist of JJR-2 to JJR-4?

A. Yes.

MS. CANO: Mr. Chairman, I would note that these have been premarked for identification as Numbers 78 to 80 on Staff's Comprehensive Exhibit List.

CHAIRMAN CARTER: For the record, exhibit 8 through 80 on Staff's Comprehensive Exhibit List. You may proceed.

BY MS. CANO:

Q. Have you prepared a summary of your rebuttal?

A. Yes, I have.

Q. Would you please provide that to the Commission at this time.

A. Certainly. The purpose of my rebuttal testimony is to respond to the direct testimony of OPC Witness Jacobs and the testimonies of SACE Witnesses Gundersen and Cooper regarding FPL's new nuclear program.

First, regarding Doctor Jacobs' concerns about the EPC contract or lack thereof, my rebuttal testimony reviews why FPL elected not to enter into an engineering

procurement and construction contract in 2007 and 2008. This decision will not prevent the company from entering into an EPC contract if this becomes attractive, and at this time FPL should preserve this option to later competitively bid the construction contract. Other sponsors of new nuclear plants and the sponsors of multiple fossil fuel plants have chosen to use this same approach, and it is consistent with FPL's step wise approach to committing new funds to the nuclear project.

Lastly, I note that despite Witness Jacobs' assertions to the contrary, putting FPL on notice today that its approach could be found at a later date to have been imprudent is exactly the type of hindsight review this Commission should reject in this and future nuclear cost-recovery proceedings.

Next, with regard to the criticisms of FPL's feasibility analysis, my rebuttal testimony also addresses how FPL has updated its feasibility analysis for the 2009 proceeding. The break-even analysis performed by FPL is consistent with the methodologies that Concentric, my firm, and others use to analyze construction programs and to value existing plants.

Witness Cooper attempts to call FPL's cost estimate into question by comparing it to several generic cost estimates, cost estimates of other reactor

technologies, and by citing historic escalation in cost estimates. This comparison is clearly inappropriate given the vastly different reactor designs available in the current market and the site-specific and technology specific cost estimate that FPL has utilized.

Witness Jacobs also asserts that the Commission should direct FPL to update its cost estimate, but fails to provide any analysis which demonstrates that the current estimate is inappropriate.

Witness Gundersen claims to have identified a number of new uncertainties which effect the long-term feasibility of FPL's new nuclear project. Concentric thoroughly examined hundreds of FPL documents throughout 2009. I fully believe that FPL is aware of the uncertainties that Witness Gundersen notes and has taken reasonable and prudent steps to mitigate those uncertainties.

Witness Cooper further claims to identify a number of changes in the economic, political, and regulatory environment which make FPL's new nuclear project infeasible. These claims are based on speculation about future business conditions and the conclusions of other studies which clearly acknowledge that these results may not be achievable under current circumstances. This new information does not render the

pursuit of FPL's new nuclear program imprudent.

It is my opinion that FPL has reasonably accounted for what is knowable at this time and has relied upon a reasonable range of assumptions to determine the continued viability and feasibility of its new nuclear project.

In conclusion, by choosing not to enter into an EPC contract in 2008, FPL has prudently preserved the option to competitively bid the construction of the new nuclear project. FPL's current range of cost estimates for the new nuclear project falls within a reasonable range when compared to truly similar projects. FPL has developed and implemented a thorough process to identify and mitigate the uncertainties related to its new nuclear project, and this appropriately identifies the risks, establishes steps to mitigate the risks, and monitors these risks.

Finally, under current circumstances, the Commission should seek to preserve all of the options in FPL's resource plan including the new nuclear project and additional renewable resources and energy efficiency measures. None of these options should be foreclosed at this time. That completes my summary.

MS. CANO: FPL tenders the witness for cross.

CHAIRMAN CARTER: Mr. McGlothlin. One moment,

Mr. McGlothlin.

Commissioner Skop.

COMMISSIONER SKOP: Thank you, Mr. Chair.

Good evening, Mr. Reed.

THE WITNESS: Good evening.

COMMISSIONER SKOP: On Page 34 of your rebuttal testimony, I just have a point of clarification, just because I prepared my own question. But at the bottom of the page at Line 24 it refers to Exhibit JJR-5. Is that perhaps a typo and that should be JJR-4?

THE WITNESS: Yes, thank you. It should be Exhibit JJR-4.

COMMISSIONER SKOP: Thank you.

CHAIRMAN CARTER: Mr. McGlothlin.

CROSS EXAMINATION

BY MR. McGLOTHLIN:

Q. Mr. Reed, first, I want to ask you some questions about your comments on the FPL feasibility study. I assume you have become familiar with that portion of the rule that requires the study to be performed, maybe not?

A. Yes, I am.

Q. And you are aware that the rule requires the utility to perform a detailed long-term feasibility

study on an annual basis?

A. I am aware of that.

Q. Okay. Now, with respect to your comments on FPL's study, please turn to Page 13 of your rebuttal testimony.

A. I have that.

Q. At Line 17 you say, "Additionally, there has been significant volatility in the price of several inputs to the cost estimate for any new nuclear project." Do you see that statement?

A. That is correct, I do.

Q. Now, the feasibility project -- feasibility analysis compares the cost of the nuclear project with the alternative cost of a combined cycle unit, correct?

A. Yes.

Q. And one of the inputs to the analysis is the cost of fuel over time, correct?

A. That is correct.

Q. And would you agree that the cost of fuel is volatile over time?

A. Yes, I would.

Q. And would you agree that in the feasibility study that FPL submitted, it did update the parameters of the alternative to the nuclear unit, including fuel?

A. Yes, it did.

Q. At Line 13 you state, "FPL did not update the cost estimate for the 6 and 7 project this year because the current estimate continues to represent the best information available to the company and is appropriate for the purpose of the feasibility analysis."

Would you agree with me that since -- well, let me ask another question first. You state in your testimony, do you not, that the capital costs for the nuclear unit were estimated in mid-2007?

A. That is correct.

Q. Would you agree with me that the mid-2007 data does not represent the most current possible estimate of the capital costs associated with the nuclear unit?

A. It is the most current information that is available. I'm not sure what you mean by possible.

Q. It is the most current available because FPL chose not to update it, correct?

A. That is correct.

Q. I will refer you now to Page 4 of your rebuttal testimony.

A. I have that page.

Q. With respect to Doctor Jacobs' testimony on the subject of FPL's plan to consider something other than an EPC contract, you say putting FPL on notice today that the company will be responsible for any

additional cost that could result from this decision is exactly the type of hindsight review the Commission must reject. Let me ask you about your use of the word hindsight review. Would you agree with me that it would be appropriate for the Commission to consider the prudence of a utility's decision based upon the information it knew or should have known at the time the decision was made?

A. Certainly. That is the accepted standard.

Q. And would you agree with me that hindsight review typically is used to refer to an attempt to gauge the prudence of a decision using information that was learned later in time?

A. Yes, that is correct.

Q. Now, FPL has not yet made a decision, a final decision on the form its contract will take, whether EPC or EP and C, if I may use those appellations, correct?

A. It has not yet made a final decision, that is correct.

Q. And FPL has not incurred any costs that would be associated with the implementation of either of those forms of contract at this point, correct?

A. That is correct. Although Mr. Jacobs does discuss the existing contract with BVZ as being part of this plan.

Q. As being part of the indication of FPL's plan to consider something other than EPC in the final analysis, correct?

A. Yes.

Q. So would you agree with me that Doctor Jacobs' testimony and OPC's position as being articulated and communicated to the Commission well in advance of either the decision to enter one form of contract or the other, and even further in advance of any costs that will ultimately be incurred as a consequence of that decision?

A. It is offering a view today without a finding of imprudence that the company will be responsible for any additional cost in the future based upon whatever those costs are. So it is using the result of the decision in the future to judge the prudence and the amount that should be allowed rather than the events known and knowable today when the decision is being made. That is the epitome of the use of hindsight.

Q. You say it is the epitome of hindsight, but isn't it true that if the Commission were to determine in this proceeding that the utility should be aware that it will scrutinize the ultimate costs and gauge those ultimate costs based upon whether they are higher as a result of the decision made in the near term, that would

have the effect of -- not of hindsight review, but of informing the company in sufficient time for the company to base its actions on that information.

A. It is raising an issue. And let's be clear, I think it is appropriate to say this is an issue and the Commission wants to take a look at it going forward with regard to the cost consequences of the EP strategy versus the EPC strategy. However, to say we are going to say right now that the decisions the company has made so far are going to put the company at risk for disallowance based upon what that result might be two, five, or ten years hence, that is making a disallowance two, five, or ten years hence using hindsight. It is saying I'm going to look back to that decision they made in 2008. I am going to declare now that I know the consequences of it, but only now that I know the consequences I am going to declare that to be imprudent back in 2008, and I am going to disallow the cost.

That is the epitome of a hindsight review and that is the epitome of what courts and the National Association of Regulatory Utilities Commissioners has said is improper.

Q. In your answer you referred to what you characterized as decisions already made. Do you have in mind the decision to employ the Black & Veatch firm for

the scope of work under the current contract?

A. That is part of it. I think the bigger part is the decision they have made is to not enter into an EPC contract to this date, and that seems to be what Mr. Jacobs is criticizing, and saying he wants to put the company on notice for in the future in terms of any potential cost consequences. You have to judge that decision based upon the information known and knowable today, not based upon the consequences five years hence.

Q. So the decisions made today -- do you understand -- are you saying that you believe Doctor Jacobs testified that he believes FPL has made a decision not to enter an EPC contract?

A. He certainly criticizes FPL for not having entered into an EPC contract, and for to date having pursued the strategy of a separate EP approach and construction contract approach.

Q. Okay. Can you point to me in Doctor Jacobs' testimony any question and answer where he makes that statement?

A. I don't have his testimony in front of me. And I will admit that his testimony is vague on this points, and I think the entire position of OPC is vague on this point. If, in fact, there is no decision that is being judged imprudent today, then there should be no

discussion of cost disallowances today. If alternatively, there is a decision that the company has made in 2008 that OPC wishes to judge to be imprudent, that decision needs to be based upon circumstances as they exist today, not on the consequences five years hence.

Q. All right. If you will assume for me for the purpose of the question, first, that FPL by its actions to date have indicated at least preliminarily a plan to consider a contractual arrangement other than what we call the EPC norm, is that a fair assumption?

A. I understand that assumption, yes.

Q. Okay. Assume for me for purposes of the question that Doctor Jacobs' testimony does not criticize the utility for not having entered into an EPC contract as of now, but rather points out that the exposure to potentially higher costs in the event FPL enters something other than an EPC contract. Do you understand that?

A. I understand that is part of his contention, yes.

Q. Okay. Now, in the event that FPL were to enter a contract other than the EPC contract, and in the event the Commission were to determine ultimately that decision led to costs higher than those costs would have

been under the EPC format, do you think the Commission, based upon the testimony entered in this proceeding and on the accepted standard or review would be in a position to disallow the higher costs?

A. No, only if they first determined that the company's conduct was imprudent. You can't judge the decision. The prudence -- let's back up one step. Prudence relates to decisions, not to costs. If you determine that the decision was imprudent, then you move on to the second phase of a prudence analysis and determine what are the incremental costs associated with the imprudent action. You have to start by saying what was the decision made and was that decision imprudent.

So far we certainly don't have any basis for finding any of the company's actions or decisions to have been imprudent. My point is you can't simply say now we are putting you on notice if there is ever any incremental costs down the road from this decision, and by the way, we are not telling you this decision today is imprudent, we are going to put you at risk for those recoveries. That is a hindsight analysis at that time. It is saying I'm going to go back now and revisit that decision you made some years earlier based upon what I know to be the consequences of that decision. That is not permissible under a prudence review.

Q. Would you agree that the prudence of the decision is a function, among other things, of the identification and management of risks involved in making one decision or the other?

A. I'm sorry, identification of risks?

Q. Yes.

A. Certainly management should consider the risks associated with its decisions, the consequences, and obviously make the best decision it can at the time.

Q. In the event that FPL were to ultimately -- after exploring alternatives, maintaining optionality, attempting to foster competitive bidding, if at the end of that exercise FPL were to enter an EPC contract, would you support that decision?

A. Could I have the question restated in its entirety? I think I lost the preamble.

Q. All right. Well, maybe I will break it up. As I understand it, FPL's testimony in this case is that it has not made the ultimate decision as to how to approach the contractual relationship, and that it is involved in increasing optionality, encouraging competitive bidding, and negotiating the best deal. If at the end of that process, FPL were to ultimately choose to enter an EPC contract, would you support that decision?

A. Quite possibly, if the decision was made based upon an assessment of all the relevant information known or that should have been known at the time and that was the conclusion they reached. I would judge the prudence of that decision based upon that decision-making process at that time and ask all the typical questions of did they consider the right information, did they have the right information available to them that they should have had, not what was the result of the decision.

Q. And among the information that they would have or should have would be an evaluation of the relative risks involved among the alternatives, correct?

A. Yes. I mean, that is really the benefit of waiting. And anytime you can postpone a decision that is of this magnitude, gain more information, and make the decision on a more fully informed basis at a later date without jeopardizing the achievement of your objectives, that is the benefit of preserving optionality, and that is what the company is trying to achieve here.

MR. McGLOTHLIN: No further questions.

CHAIRMAN CARTER: Mr. Davis.

MR. DAVIS: Thank you, Mr. Chair. I will try to keep it as brief as possible.

CROSS EXAMINATION

BY MR. DAVIS:

Q. Mr. Reed, if you will turn, please, to Page 19 of your rebuttal.

A. I have that page.

Q. Okay. And let's start at the answer to the question that begins on Line 16. And let me preface that by asking if when you reviewed Mr. Gundersen's testimony, that you agreed with the concerns that he raised about the uncertainties with regard to scheduling. Do you basically agree that there are a number of uncertainties with regard to scheduling?

A. Yes, there certainly are a number of uncertainties with regard to scheduling.

Q. Okay. So the question is, SACE Witness Gundersen states that any delays as a result of the schedule uncertainties would result in increased costs to FPL's customers. Has FPL included contingencies in its schedule and cost estimates? You answer yes. And let me ask -- first of all, you say FPL considered the need to include a contingency in its cost estimate. That is a little different than including a contingency, isn't it?

A. Let me clarify, then. It has included a contingency.

Q. Okay. Now, in terms of where that contingency

appears, is it in the cost estimate for the capital costs of the plant, or is it in the analysis done by Doctor Sim, where is that?

A. Well, it is certainly within the cost estimate for the plant. With regard to all elements of cost, not just the capital cost, but financing costs, inflation, capital costs, labor costs, everything.

Q. But none of those costs, the so-called all-in costs include any delay in schedule, do they?

A. Certainly they do. That is the nature of the schedule delay is the effect it has on the cost of the project is basically adding inflation and financing costs.

Q. Where in that analysis does it project a scheduling delay beyond the plan date of 2018 and 2020 for these two units?

A. It is not tied to that specifically. The application and the company's cost estimate of contingencies is done at a higher level, and it is based upon the level of specificity that has been achieved in that cost estimation process. So we will use a 15 percent contingency on some items, a 10 percent contingency on others, but it is on the all-in cost, so it includes the effects of a delay on inflation and AFUDC costs.

Q. And are you saying that the all-in costs include any different factors for inflation or AFUDC than are typically included or were included in the need docket for this unit?

A. No, I'm not saying they are any different than what is typically included, but that does include the effects on cost of a schedule slippage. The effects of a slippage are manifested in the results you get for the AFUDC cost and for inflation.

Q. But you didn't add any additional costs as if the schedule was going to slip beyond 2018 or 2020?

A. As I understand your question, the company did not add two layers of contingency, one for the 15 percent contingency and then a separate one on top of that for a delay above and beyond that.

Q. Okay. And as we sit here today, as you have heard repeatedly, the company is still projecting 2018 and 2020, and has not responded to these uncertainties in any type of schedule delay, right?

A. I'm not sure what you mean by hasn't responded. It has certainly continued to evaluate the need, which is the issue driving the commercial operation date that is projected here, and it has evaluated whether that need would permit the projects to slip to a later date while still meeting the capacity

objectives for the company.

Q. You go on to say in your second sentence starting at Line 20, "However, development and construction of a new nuclear power plant is an incredibly complex undertaking and the potential does exist that the Turkey Point 6 and 7 project will exceed these contingencies." Is that what you just agreed to in response to my last question?

A. Yes. But then it continues to say that the contingency factors the company has used are appropriate and within industry guidelines.

Q. But they don't reflect the added uncertainties that have occurred over the past two years, correct?

A. That presumes that there are added uncertainties that have occurred over the past two years. I'm not sure that I would say that the uncertainty that exists today is greater than the uncertainty that existed two years ago when these cost estimates were developed. If anything, I think the uncertainties in some areas have been reduced.

Q. Now, in terms of delay, however, there are added uncertainties including the latest letter from the Nuclear Regulatory Commission to Westinghouse on August 27th of 2009, correct?

A. But, again, I would go back to the question of

are those any different than they were at the time of the need docket or at the time this cost estimate was developed. They really aren't.

The issue of schedule uncertainty, uncertainty on the design certification process, and uncertainty on the COLA process was all discussed in the need docket. I discussed some of that in the need docket. So I don't think there is any incremental change in those. In fact, with the two years of advancement in those NRC proceedings, I actually think we have a greater degree of knowledge today about what lies ahead in those programs than we did two years ago.

Q. If this schedule is not subject to further delays and it is reasonable for FPL to come to this Commission with the same dates that it had in its need docket almost two years ago, what would you project in terms of being able to complete these reactors at an earlier date? Is that within the realm of possibility, you could build them faster?

A. Anything is possible. I think the company is, again, focused on when are they needed, and its analysis so far confirms that 2018 and 2020 are the dates that would be appropriate for them to be added to the resource base of the company.

Q. Could you build them a year earlier?

A. That is not something I have studied. It is not really the subject of my testimony here.

Q. So really in terms of the schedule, FPL is at the point where it is not willing to even look at changing the schedule.

A. I don't think that is the case at all. The company has looked at it, the company has evaluated, again, does the need permit the units to be slipped a year or two. The answer right now is if you look at Mr. Sim's analysis, the reserve margins in 2018 and 2020 indicate that those are the appropriate times for these resources to be added. That can change and the company will continue to evaluate that, and, of course, this Commission will have annual opportunities to continue to review that.

Q. And if this Commission approves the analysis of feasibility it will continue to permit FPL to spend more and more money while it waits for this go/no go decision, correct?

A. That was sort of a compound question. Putting aside the issue of the go/no go decision, maintaining the optionality of this resource costs money. I heard you discuss earlier about whether Mr. Cooper does or does not support the continued evaluation of these options. What he says is you shouldn't spend anymore

money. Well, I have to tell you you cannot preserve these options as resources for the future without spending money, without continuing to march them through the COLA process, and without continuing to engage in contract negotiations and maintaining all of the necessary steps to get to the commencement of construction. So, realistically if you say you shouldn't spend anymore money, you are saying you should not preserve the option.

Q. Well, I don't believe Doctor Cooper said that. I believe he said you should continue to evaluate.

A. He said quite clearly in three places you should not be allowed to spend one more cent. He said it would be imprudent to spend one more cent.

Q. To develop these resources, not to evaluate.

A. Unequivocally he said it would be imprudent to spend one more cent.

Q. Now, are you comparing the 58 million that FPL has projected to spend in 2010 with the few million, or maybe less than that, or probably less than that to continue to evaluate the option?

A. I'm not sure I understand your question.

Q. Well, I mean, developing with engineering costs and with contractual arrangements is going to be far more expensive than continuing to evaluate, which

would be relatively nothing compared to the development program.

A. Let's be specific. The bulk of the money that has been spent so far has been spent on the COLA process, the NRC application for the combined operation and construction license. You can't stop that process and preserve the optionality of this project being built in the 2018/2020 time frame.

If you shut down the COLA process, you can stop spending money on it. If you maintain the COLA process, you have to continue to spend millions of dollars a year to preserve that process and to keep it on track. So, could you quote, analyze something for a lot less money? Yes. But could you do that and maintain the optionality of keeping these units as resources for 2018 and 2020? No.

Q. Assuming for purposes of this question that the resources aren't needed in 2018 or 2020 to meet demand, and I know there has been debate about that and there will continue to be debate about that. You could stop the process and evaluate for two or three years and determine at that point whether you should reenter the COLA process, correct?

A. Yes. You would essentially be sacrificing the work done to date. It is pretty much tantamount to

canceling the project and starting over three years from now.

Q. Now, the economics of any project are not based upon sunk costs, are they?

A. No, they are based upon going forward costs.

Q. Okay. Now, you say on Page 22 of your rebuttal testimony, and I am going to summarize this and you can correct me if I'm wrong, that having other companies in line before you for the licensing process is basically a good thing. Is that a fair paraphrasing of your --

A. Can you -- I don't see that on Page 22. Can you direct me to a line number?

Q. Page 22 refers mostly to the staffing. Let me just back up. I mean, have you said in your rebuttal testimony that having other units being licensed in the COLA process before Turkey Point, even though the Turkey Point 6 and 7 are still in the first wave, is a good thing for Turkey Point?

A. Again, a multiple part question. Yes, I do think that the company is in a good position in terms of having units ahead of it in the COLA process and in the state regulatory process. I would actually describe FPL more as being on the edge of the second wave of new nuclear projects. It is Project Number 5 in the AP 1000

queue, so, I would describe it really as being more in the second wave. But, I do think there are substantial benefits to watching and learning from what goes on ahead of them.

Q. And there is also a substantial issue with competing for resources with those other nuclear power companies, correct?

A. There can be. I mean, to be honest, there is a lot of competition right now for nuclear resources and there will continue to be. One view is that over time you will see the supply chain respond and colleges and universities train more people in these fields that are so important, and the labor will actually become more available over time as the supply side of the market responds. So, it is hard to say that you are going to be disadvantaged by being Project Number 5 as opposed to Project Number 1.

Q. Turning to Page 24 of your rebuttal testimony, if you will, please. You reference the experience in China as an example of the AP 1000 projects proceeding relatively smoothly?

A. Yes, I do refer to the China program.

Q. You are aware that the Chinese regulations are not as stringent as those in the United States, is that correct?

A. They are different. I'm not sure I would describe them as less stringent, but they are certainly different.

Q. And have you reviewed any news stories lately of Chinese officials who have been imprisoned for taking bribes in that regulatory program?

A. I'm sorry, what was the last part of that question?

Q. Taking bribes from the nuclear industry?

A. I have not reviewed that with regard to the Chinese licensing process, no.

Q. Let me ask you if you will turn to Page 25, please?

A. I have that.

Q. You discuss in the answer starting on Line 12, about electricity demand, fuel prices, and environmental compliance costs fluctuating substantially. And you state that these fluctuations and new policies are sources of tremendous cost and schedule uncertainty for the Turkey Point 6 and 7 project, correct?

A. I do.

Q. Now, in terms of environmental compliance costs, you would distinguish the certainty or uncertainty of the compliance costs for sulfur dioxide emissions, mercury, particulates from those for CO2,

right?

A. I certainly believe there is a higher degree of uncertainty with regard to the costs associated with CO2.

Q. And in terms of the role of energy efficiency and the cost of energy efficiency, you would agree that energy efficiency costs are fairly well established?

A. Yes, I think they are fairly well established. I would say the potential for those resources is probably the area of greatest debate.

Q. But there is not nearly as much uncertainty in the cost of energy efficiency as there is, for instance, in the cost of a nuclear power plant?

A. For existing energy efficiency or demand management programs, I would say that is correct.

Q. Now, the drop in demand that you have agreed has occurred for FPL and for the Turkey Point 6 and 7 units -- I'm sorry, for the FPL network altogether, is about 3,800 megawatts, is that right?

A. I don't believe that is in my testimony. I think that probably should be directed to Mr. -- or should have been directed to Mr. Sim.

Q. Have you looked at that drop in demand overall and compared it to, for instance, the size of the projected -- the proposed nuclear units of Turkey Point

6 and 7?

A. I have.

Q. And what is the comparison?

A. Well, certainly 3,800 megawatts is more than what is in the combined capacity projected for Turkey Point 6 and 7.

Q. It would be about 3.5 units, wouldn't it?

A. That is correct.

Q. And that is the drop in demand projected for 2017, is that correct?

A. Again, could you give me a reference in my testimony on that? I don't believe that is in my testimony.

Q. It is not in your testimony, but if you know. But it is future demand, it is not the demand projected for next year, for instance.

A. That is not the demand for next year, I think we can all agree on that.

MR. DAVIS: Mr. Chair, I believe that is all I have for this witness.

CHAIRMAN CARTER: Thank you. Mr. Moyle, you're recognized.

MR. MOYLE: Thank you.

CROSS EXAMINATION

BY MR. MOYLE:

Q. Mr. Reed, you have over 30 years of experience in the energy industry in sharing your advice and opinions with others, isn't that correct?

A. I do.

Q. And that advice and opinion is a valuable asset that you possess, you would agree with that, would you not?

A. I hope so.

Q. You would agree one of the biggest risks with nuclear projects because of the high capital cost involved is the risk of delay, correct?

A. Yes, that is a significant risk in terms of cost uncertainty.

Q. So if you were asked to provide your best judgment today, and the facts you were given was there are two companies that are intimately familiar with the A 1000 design that are well thought of and qualified, and there is another company that is less familiar with the A 1000 design, and you had to make a decision as to whether to move forward and execute an EPC contract at this time or to not do so, what would your advice be?

And maybe I didn't phrase that exactly right, but in terms of asking, okay, look, we don't want to have a hindsight review. Judge the facts as they exist

today as you have set forth in your report, as we have talked about, what would be your best advice as to whether an EPC is the way to go or not?

A. My advice quite simply would be negotiate hard and long with the EPC contractor, try and get the very best terms you can, and see what they look like, and above all preserve your optionality. Wait for as long as possible to sign that contract, up to the point where it begins to get on the critical path for constructing the units, and take advantage of all intervening events as additional information that you can have in the process in making your final decision.

There is no substitute for having better information and more information. The longer you wait, the more information you get, and the more informed you can be in making that final decision.

Q. If you were having open-heart surgery, you wouldn't opt to go with a surgeon who was performing his first open-heart surgery on you, would you?

A. No, and I certainly wouldn't sign an EPC contract with someone who isn't intimately familiar with the technology. And, of course, no one here has suggested that FPL is thinking about that.

Q. And given the fact that you can have significant delay costs with the capital costs, wouldn't

it make it more sense to go ahead and sign an EPC contract with a company that has familiarity with the design?

A. That is, again, two parts. It would make sense if you are going to sign an EPC contract to sign with a company that is highly capable and familiar with that design. That doesn't mean you should sign an EPC contract.

Q. Wouldn't you also agree that signing an EPC contract to the extent that it avoids potential questions and uncertainties with respect to scope of responsibilities, that signing an EPC contract is a better proposition to eliminate scope questions as compared to an EP contract with a separate C contract?

A. If you limit the issue to scope, I think the answer I would give you is what I gave you before. The longer you wait the better, and the more information you get, for example, out of the NRC's design certification process, the better. The more information you get out of your site specific analysis of building the plant, the specific plant at that site, the better.

But separately there is the question of whether signing an EP contract or an EPC contract minimizes risk on scope. It may. If all you look at is minimizing risk on scope, signing an integrated EPC

contract may do a better job of that. That doesn't mean that it is the more cost-effective solution. It means you are perhaps taking the safer way out, but it doesn't mean that that is the most cost-effective solution.

Q. There are five AP 1000 projects currently in the queue at the NRC, isn't that correct?

A. Six, I think.

Q. Okay. And isn't also correct that BVZ is not involved with any of those other five to the degree that Bechtel is involved if terms of processing this license application?

A. I don't believe BBZ is involved to that extent with any of the other five.

Q. And you would agree that process in the coal application gives an engineer company additional insights and information with respect to the design of the project, correct?

A. Yes. Involvement with the technology helps, and, of course, that is why BBZ was given the opportunity to become more familiar with the technology in a small role here.

Q. Now, you were asked questions, and I don't want to belabor this point much longer, but you are not suggesting to this Commission that 2007 data with respect to capital costs is as reliable as data that

might be able to be ascertained if you went out into the marketplace say this this summer to try to gather current market data with respect to nuclear capital costs, you are not suggesting that, are you?

A. No, but what I'm saying is the company's cost estimate really don't have the basis for having any more information known today. We did go out and look at more current cost information, and we looked at the very most recent cost estimates proposed and published by each of the AP 1000 sponsors, all five of the other companies.

So we were able to compare FPL's cost estimate to what everybody else is saying in 2009 or 2008. And, of course, it showed that that comparison was that FPL's estimate is very reasonable.

Q. The information that FPL was using was the 2007 data, correct?

A. The information that I used in my analysis was 2007 for FPL.

Q. The Wharton Business School has a very good reputation, and that is where you told me earlier you received an economics degree, correct?

A. Correct.

Q. You would agree with me that if the Wharton Business School was teaching its students to make a judgment about project feasibility that they would not

suggest that two year old data be used as compared to the most recent data available, would they?

A. I would think that the view of anybody practicing would be to use the information that is most indicative of what is going to happen ten years hence, and that is really what we are trying to do. The information that is available for one month, or one day, or even three months in an economic cycle that has seen tremendous volatility in commodity prices isn't going to be helpful for trying to figure out in a better way where you are going to be in ten years.

We are trying to look ahead a decade. Prices go up, prices go down. If you change your cost estimate every month based upon fluctuations in commodity pricing, in my opinion you are exercising a foolish choice.

Q. You made a comment in response to a previous question that you thought delaying for three years was tantamount to canceling the project, correct?

A. From a COLA perspective, yes.

Q. Is that because that the information and the data would go stale over a three-year period?

A. No. First of all, it means you are going to be bounced out of the queue at the NRC. Second of all, the NRC doesn't have a process yet established for

refiling three years hence under the current Part 52 rules. So, what you face in terms of a COLA process is going to be very, very uncertain if you try and basically refresh your application three years later.

Q. Doesn't that process require you to provide the most current and updated information available?

A. It does.

MR. MOYLE: That's all I have. Thank you.

CHAIRMAN CARTER: Thank you. Staff.

MR. YOUNG: No questions.

CHAIRMAN CARTER: Commissioner Skop.

COMMISSIONER SKOP: Thank you. Mr. Reed, if I could ask you to please turn to Page 33 of your rebuttal testimony beginning on Lines 11 through 15, please.

THE WITNESS: Yes, I have that.

COMMISSIONER SKOP: In that response you are discussing Witness Cooper and his argument that the stream of prices for NYMEX gas futures, or natural gas futures on a single day provides evidence of natural gas price expectations through 2020. And relating that back to your exhibit which is JJR-4, which shows those NYMEX natural gas future prices, do you know when that data was prepared in that exhibit approximately?

THE WITNESS: Shortly before this testimony was submitted in August of 2009.

COMMISSIONER SKOP: Okay. And you would agree, would you not, that at least for spot market prices that natural gas prices have fallen substantially since that time, is that correct?

THE WITNESS: Yes, they certainly have for the current months. Two or three years further out the changes are much less, but for the current months they are far lower today.

COMMISSIONER SKOP: Okay. So in relation to your response on Page 33 of your rebuttal testimony, if you were to resubmit the natural gas future contract prices today, those numbers would be substantially different and likely lower, is that correct?

THE WITNESS: The prices would be far lower. But really the point of that exhibit was to show how thinly traded the out months are in those contracts and that fact remains today.

COMMISSIONER SKOP: Thank you.

CHAIRMAN CARTER: Anything further from the bench?

Redirect.

MS. CANO: No redirect.

CHAIRMAN CARTER: Exhibits.

MS. CANO: Yes. FPL moves Exhibits 78 to 80.

CHAIRMAN CARTER: Are there any objections?

Without objection, show it done.

(Exhibit Numbers 78 through 80 admitted into the record.)

CHAIRMAN CARTER: Commissioners, this looks like a good breaking point, and we will pick up tomorrow at 9:30. We are adjourned.

(Transcript continues in sequence with Volume 5.)

STATE OF FLORIDA)

: CERTIFICATE OF REPORTER

COUNTY OF LEON)

I, JANE FAUROT, RPR, Chief, Hearing Reporter Services Section, FPSC Division of Commission Clerk, do hereby certify that the foregoing proceeding was heard at the time and place herein stated.

IT IS FURTHER CERTIFIED that I stenographically reported the said proceedings; that the same has been transcribed under my direct supervision; and that this transcript constitutes a true transcription of my notes of said proceedings.

I FURTHER CERTIFY that I am not a relative, employee, attorney or counsel of any of the parties, nor am I a relative or employee of any of the parties' attorney or counsel connected with the action, nor am I financially interested in the action.

DATED THIS 9th day of September, 2009.

JANE FAUROT, RPR
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