BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

DOCKET NO. 110009-EI
FLORIDA POWER & LIGHT COMPANY

MAY 2, 2011

IN RE: NUCLEAR POWER PLANT COST RECOVERY
FOR THE YEARS ENDING
DECEMBER 2011 AND 2012

TESTIMONY & EXHIBITS OF:

STEVEN R. SIM

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FLORIDA POWER & LIGHT COMPANY

DIRECT TESTIMONY OF STEVEN R. SIM

DOCKET NO. 110009- EI

May 2, 2011

Q. Please state your name and business address.

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

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

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

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

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

Q. Please describe your education and professional experience.

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

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

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

Q. Are you sponsoring any exhibits in this case?

A. Yes, I am sponsoring the following 12 exhibits:

- Exhibit SRS – 1: Summary of Results from FPL's 2011 Feasibility Analyses of the EPU and Turkey Point 6 & 7 Projects (Plus Results from Additional Analyses);
- Exhibit SRS – 2: Comparison of Key Assumptions Utilized in the 2010 and 2011 Feasibility Analyses of FPL Nuclear Projects: Projected Fuel Costs (Medium Fuel Cost Forecast);

- Exhibit SRS – 3: Comparison of Key Assumptions Utilized in the 2010 and 2011 Feasibility Analyses of FPL Nuclear Projects: Projected Environmental Compliance Costs (Env II Forecast);
- Exhibit SRS – 4: Comparison of Key Assumptions Utilized in the 2010 and 2011 Feasibility Analyses of FPL Nuclear Projects: Summer Peak Demand Load Forecast;
- Exhibit SRS – 5: Projection of FPL's Resource Needs Through 2025;
- Exhibit SRS – 6: Comparison of Key Assumptions Utilized in the 2010 and 2011 Feasibility Analyses of FPL Nuclear Projects: Other Assumptions;
- Exhibit SRS – 7: The Two Resource Plans Utilized in the 2011 Feasibility Analyses of the EPU Project;
- Exhibit SRS – 8: 2011 Feasibility Analyses Results for the EPU Project: Total Costs and Total Cost Differentials for All Fuel and Environmental Compliance Cost Scenarios in 2011$;
- Exhibit SRS – 9: 2011 Feasibility Analyses Results for the EPU Project: Percentage of FPL's Fuel Mix from Nuclear, 2010 - 2020
- Exhibit SRS – 10: The Two Resource Plans Utilized in the 2011 Feasibility Analyses of Turkey Point 6 & 7;
- Exhibit SRS – 11: 2011 Feasibility Analyses Results for Turkey Point 6 & 7: Total Costs, Total Cost Differentials, and Breakeven Costs for All Fuel and Environmental Compliance Cost Scenarios in 2011$; and,

- Exhibit SRS – 12: Direct Testimony and Exhibits of Steven R. Sim in the 2010 NCRC docket.

Q. What is the purpose of your testimony?

A. My testimony provides the results of the 2011 economic analyses for the extended power uprates (EPU) project for FPL's existing nuclear units, and for the new FPL nuclear units, Turkey Point 6 & 7, using current assumptions. In my testimony I will refer to these analyses as the 2011 feasibility analyses for both projects. I also present the results of additional analyses of the two nuclear projects. In addition, I shall also discuss the assumptions used in the 2011 feasibility analyses. Because last year's determination was deferred pursuant to a stipulation, I have also attached my 2010 direct testimony and exhibits as Exhibit SRS – 12.

The 2011 feasibility analyses are presented to satisfy the requirement of Subsection 5(c)5 of the Florida Administrative Code Rule 25-6.0423, Nuclear Power Plant Cost Recovery which states "By May 1 of each year, along with the filings required by this paragraph, a utility shall submit for Commission review and approval a detailed analysis of the long-term feasibility of completing the power plant."

Q. Has the Florida Public Service Commission provided guidance regarding what is required in these feasibility analyses?

A. Yes. On November 19, 2009, in Order No. PSC-09-0783-FOF-EI, page 14, the Florida Public Service Commission (FPSC) provided such guidance. In

regard to analyses of FPL's Turkey Point 6 & 7 units, the relevant part of this order stated:

"On page 29 of Order No. PSC-08-0237-FOF-EI, we provided specific guidance to FPL regarding the requirements necessary to satisfy Rule 25-6.0423(5)(c)5, F.A.C. The Order reads as follows:

> "FPL shall provide a long-term feasibility analysis as part of its annual cost recovery process which, in this case, shall also include updated fuel costs, environmental forecasts, break-even costs, and capital cost estimates. In addition, FPL should account for sunk costs. Providing this information on an annual basis will allow us to monitor the feasibility regarding the continued construction of Turkey Point 6 and 7."

Q. What is the scope of your testimony?

A. My testimony addresses four main points:

(1) The analytical approaches used in FPL's 2011 feasibility analyses are briefly discussed and compared to the analytical approaches utilized in prior economic analyses of the two nuclear projects.

(2) Various updated assumptions used in the 2011 feasibility analyses are compared to the assumptions that were previously used in the 2010 analyses. The resulting "directions" of these assumption changes, in regard to the economics of the nuclear projects being favorable or

unfavorable, are also briefly discussed. A brief discussion of the nature of the updated assumptions used in the feasibility analyses, and of the feasibility analyses is also provided.

(3) The results of the 2011 feasibility analyses, plus the results of other analyses, of the EPU project are provided.

(4) The results of the 2011 feasibility analyses, plus the results of other analyses, of the Turkey Point 6 & 7 project are provided.

Other feasibility-related topics for the EPU project are discussed by FPL Witness Jones. Additionally, other feasibility-related topics for the Turkey Point 6 & 7 project are discussed by FPL Witness Scroggs.

Q. Please summarize your testimony.

A. In its 2011 feasibility analyses, FPL utilized analytical approaches that it believes are currently the best approaches with which to evaluate the two nuclear projects. FPL also utilized an updated set of assumptions in its 2011 feasibility analyses.

There are a number of assumptions that must be made in any economic analysis of resource options such as the EPU project and the Turkey Point 6 & 7 project. Many of these assumptions are frequently, if not constantly, changing. However, in order to perform economic analyses that will be the focus of a months-long regulatory process such as this docket, it is customary and desirable to "freeze" assumptions and perform the economic analyses

utilizing these "frozen" assumptions. Portions of the testimonies of FPL Witnesses Jones and Scroggs discuss the development of these assumptions and much of my testimony presents the results of the economic analyses using these assumptions.

The results of the 2011 feasibility analyses for both projects, plus the results of additional analyses, are summarized in Exhibit SRS – 1. This exhibit presents the following information:

1) Both nuclear projects are projected overwhelmingly to be cost-effective for FPL's customers. The EPU is projected to be cost-effective in all 7 of 7 scenarios of fuel costs and environmental compliance costs. Turkey Point 6 & 7 are projected to be cost-effective in 6 of these 7 scenarios and are breakeven in the remaining scenario which assumes a combination of low fuel costs and low environmental costs for the entire analysis period.
2) The projected nominal fuel savings for FPL's customers from the two nuclear projects are significant. Using a Medium fuel cost/Medium environmental compliance cost (Env II) scenario as an example, the EPU is projected to save approximately $106 million (nominal) in fuel costs in the first full year of operation of the uprated nuclear units. Turkey Point 6 & 7 are projected to save approximately $1.07 billion (nominal) in fuel costs in the first full year of operation for both units.

3) Using this same fuel cost/environmental compliance cost scenario, the EPU is projected to save approximately $4.6 billion (nominal) in fuel costs over the life of the project, and Turkey Point 6 & 7 are projected to save approximately $75 billion (nominal) over the life of the units.

4) The two nuclear projects will also significantly improve the fuel diversity of the FPL system. In their first full year of operation, the EPU is projected to reduce FPL's dependence upon natural gas by approximately 2%, and to allow FPL to increase nuclear energy's contribution to system fuel mix above the current (for the year 2010) 20.0% contribution for the remainder of this decade. Turkey Point 6 & 7 are projected to reduce FPL's dependence upon natural gas by approximately another 13%. Nuclear energy from these projects will supply the amounts of energy that would otherwise have been supplied predominately by natural gas.

5) The amounts of increased energy that nuclear energy is projected to supply in the first full year of operation (and in subsequent years) from the two nuclear projects is equivalent to the total annual energy usage of approximately 209,500 residential customers for the EPU, and of approximately 1,232,100 residential customers for Turkey Point 6 & 7.

6) Stated another way, these amounts of energy projected to be supplied respectively by the two projects will save enormous amounts of fossil fuel. For illustrative purposes, if the same amounts of energy were to be supplied by conventional steam generating units, then the amount

of annual energy mentioned above for the EPU would require the consumption of approximately 29 million mmBTU of natural gas, or 5 million barrels of oil, annually. Likewise, the amount of annual energy mentioned above for Turkey Point 6 & 7 would require the consumption of approximately 177 million mmBTU of natural gas, or 28 million barrels of oil, annually.

7) The projected reductions in carbon dioxide (CO_2) emissions are also very large. Over the life of the projects, the EPU and Turkey Point 6 & 7 are projected to reduce CO_2 emissions by approximately 31 million tons and 287 million tons, respectively.

8) Stated another way, these projected amounts of total CO_2 reductions are equivalent to operating all of FPL's large system of generating units with zero CO_2 emissions for approximately 9 months in the case of the EPU, and for approximately 7 years in the case of Turkey Point 6 & 7.

Therefore, the results of FPL's 2011 feasibility analyses are that both the EPU and Turkey Point 6 & 7 are projected to be solidly cost-effective and to provide valuable firm capacity, energy, and fuel diversity for FPL's customers. These results fully support the feasibility of continuing both nuclear projects.

I. 2011 Feasibility Analyses – Analytical Approaches

Q. Were the analytical approaches used in FPL's 2011 feasibility analyses of the EPU and Turkey Point 6 & 7 similar to the approaches used in the Determination of Need filings for these projects, and in the feasibility analyses of these projects that were presented in previous NCRC filings?

A. Yes. The analytical approaches that were used in the 2011 feasibility analyses for both the EPU and Turkey Point 6 & 7 projects were virtually identical to the approaches used in the 2007 Determination of Need filings and in the feasibility analyses presented in the 2008, 2009, and 2010 NCRC filings.

Q. Please describe these analytical approaches.

A. In regard to the EPU project, the analytical approach used is the direct comparison of the cumulative present value of revenue requirements (CPVRR) for resource plans with and without the uprated capacity at FPL's four existing nuclear units that will result from the EPU project. This same analytical approach was utilized in the 2007 Determination of Need filing, and in the 2008, 2009, and 2010 NCRC filings, for the EPU project.

In regard to the Turkey Point 6 & 7 project, the analytical approach used is the calculation of breakeven overnight capital costs (in terms of $/kw) for the new nuclear units. This same analytical approach was utilized in the 2007 Determination of Need filing, and in the 2008, 2009, and 2010 NCRC filings, for the Turkey Point 6 & 7 project. In later years, as more information

becomes available regarding the cost and other aspects of the new nuclear units, another analytical approach may emerge as more appropriate.

Q. Please provide an overview of these analytical approaches.

A. The basic analytical approach in the feasibility analyses is to compare competing resource plans. FPL utilizes resource plans in its analyses in order to ensure that all relevant impacts to the FPL system are accounted for.

The analysis of each resource plan is a complex undertaking. For each resource plan, annual projections of system fuel costs and emission profiles, for each scenario of fuel cost/environmental compliance cost, are developed using a sophisticated production costing model. This model, the P-MArea model, simulates the FPL system and dispatches all of the generating units on an hour-by-hour basis for each year in the analysis. The resulting fuel cost and emission profile information is then combined with projected annual capital, operation and maintenance (O&M), etc. costs for each resource plan. In this way, a comprehensive set of projected annual costs, for each year of the analysis, is developed for each resource plan.

One resource plan contains the nuclear resource option that is being evaluated in a specific feasibility analysis; i.e., either the EPU or the Turkey Point 6 & 7 units. The other resource plan contains another, non-nuclear resource option that competes with this nuclear resource option. The competing resource option is a new highly fuel-efficient combined cycle (CC) generating unit of

the type that FPL is constructing at its existing Cape Canaveral and Riviera plant sites in its modernization projects at those sites.

The competing resource plans are then analyzed over a multi-year period. This approach allows FPL's analyses to account for both short-term and long-term impacts of the resource options being evaluated. FPL's 2011 feasibility analyses address these cost impacts. In addition, my testimony provides a discussion of two non-economic impacts, increased system fuel diversity and system emission reductions, which will result from the two nuclear projects.

II. 2011 Feasibility Analyses – Updated Assumptions

Q. Do FPL's 2011 feasibility analyses utilize updated assumptions for the specific information referred to in the previously mentioned FPSC Order?

A. Yes. FPL typically seeks to utilize a set of updated assumptions in its resource planning work. By early 2011, FPL updated these assumptions and is using them in its 2011 resource planning work including the analyses presented in this docket.

In regard to this FPSC Order, five informational items were listed that should be updated and included in FPL's annual long-term feasibility analyses of Turkey Point 6 & 7. These five items are:

(1) fuel forecasts;

(2) environmental forecasts;

(3) breakeven costs;

(4) capital cost estimates; and,

(5) sunk costs.

FPL's 2011 feasibility analyses for Turkey Point 6 & 7 include FPL's current assumptions for each these five items. In regard to FPL's feasibility analyses for the EPU project, FPL has included current assumptions for four of these five items: items (1), (2), (4), and (5). Because the analytical approach for the EPU project utilizes CPVRR results instead of the breakeven capital cost results used in the analyses of Turkey Point 6 & 7, item (3) (breakeven costs) is not relevant to analyses of the EPU project.

Q. Do FPL's feasibility analyses include FPL's updated assumptions for information other than these 5 items?

A. Yes. FPL updated a number of other assumptions by early 2011 in preparation for all of its 2011 resource planning work. Consequently, these other updated assumptions are also included in FPL's 2011 feasibility analyses. A partial listing of these other assumptions include: FPL's load forecast, projected incremental capacity by year from the EPU project, and financial/economic assumptions.

Q. Please discuss the changes in the forecasted values for fuel costs, environmental compliance costs, and peak load between the forecasts

utilized in the 2011 feasibility analyses and those that were used in the 2010 feasibility analyses.

A. Exhibits SRS – 2 through SRS - 4 provide these comparisons. Exhibit SRS - 2 provides 2010 and 2011 forecasted Medium fuel cost values for selected years for natural gas, oil, and nuclear fuel costs. As shown in this exhibit, the Medium fuel cost 2011 forecast for natural gas is lower compared to the 2010 forecast. A comparison of the forecasted prices for 1% sulfur oil shows a largely similar pattern with the 2011 forecasted values being generally lower. In regard to forecasted nuclear fuel costs, the 2011 and 2010 forecasted prices are essentially unchanged.

Exhibit SRS – 3 presents similar 2010 and 2011 information for forecasted Env II (i.e., mid-level) environmental compliance costs for three types of air emissions: sulfur dioxide (SO_2), nitrogen oxides (NO_x), and carbon dioxide (CO_2). As shown in the exhibit, the forecasted compliance costs for both SO_2 and NO_x are significantly lower with the 2011 forecast compared to the 2010 forecast. This decrease in forecasted SO_2 and NO_x compliance costs is driven by various factors including the anticipated reaction by utilities to add scrubbers and selective catalytic reduction systems (SCRs) in response to the EPA's Clean Air Transport Rule and Maximum Achievable Control Technology rules. This anticipated reaction by the electric utility industry would significantly reduce emissions and result in more allowances being available on the market, thus lowering projected allowance prices.

The differences between the 2011 and 2010 forecasted compliance costs for CO_2 are not as pronounced. The 2011 forecasted costs are assumed to begin later than in the 2010 forecast. In addition, the 2011 forecasted values are generally slightly higher in the earlier years, and are lower in later years, compared to the 2010 forecasted values.

Exhibit SRS – 4 presents the 2010 and 2011 Summer peak load forecasts. As shown in Column (3) of this exhibit, the 2011 forecast of Summer peak load, compared to the 2010 forecast, shows lower Summer peak loads through 2014, higher peak loads for 2015 – 2017, lower peak loads for 2018 – 2020, then higher peak loads from 2021 – on.

In addition, Exhibit SRS – 4 also provides a projection of the annual and cumulative growth in Summer peak loads associated with the 2011 peak load forecast. In column (5) of this exhibit, it is clear that FPL projects a cumulative growth in Summer peak load of approximately 5,844 MW by 2022; i.e., the year in which the first of the two new nuclear units, Turkey Point 6, is projected to go in-service.

Q. Based on this projected growth in Summer peak load, what is FPL's projected need for new resources?

A. FPL's projected need for new resources, assuming that the resource need is met by new generating capacity, is presented in Exhibit SRS – 5. This

projection assumes that FPL's current DSM Goals are met through 2019 and that an additional 100 MW per year of DSM are implemented from 2020 through 2025. This exhibit shows that, without the EPU and Turkey Point 6 & 7, and with no new generating resources added after the modernizations of Cape Canaveral (in 2013) and Riviera (in 2014), FPL has a need for new resources starting in 2016 and this need increases every year thereafter. The need in 2016 is for 374 MW of new generating capacity and this need increases to 5,329 MW by 2025.

Q. What other assumptions changed from the 2010 analyses to the 2011 analyses?

A. Exhibit SRS – 6 presents the 2010 and 2011 projections for 13 other assumptions that were utilized in the feasibility analyses. These other assumptions are grouped into three categories of either four or five assumptions each: (i) assumptions used in the feasibility analyses of both projects; (ii) assumptions primarily used only in the feasibility analyses of the EPU project; and (iii) assumptions primarily used only in the feasibility analyses of the Turkey Point 6 & 7 project. (Note that some of the assumptions included in the second and third groupings do have an impact in the feasibility analyses of both projects. Examples of such assumptions are the incremental capacity of the EPU project and the in-service dates of Turkey Point 6 & 7. The grouping of assumptions such as these into either the second or third groupings is done solely to facilitate discussion in this testimony of changes in assumptions.)

Q. Please discuss the first grouping of these other assumptions; i.e., those assumptions that are applicable in the feasibility analyses for both projects.

A. The five assumptions included in this grouping are:

1) the number of environmental compliance cost scenarios;

2) financial/economic assumptions;

3) the capital cost of competing CC capacity;

4) the heat rate of competing CC capacity; and,

5) the projected cost of firm gas transportation.

In regard to the number of environmental compliance cost scenarios utilized in FPL's 2011 feasibility analyses, FPL is again using three such scenarios in its 2011 resource planning work: Env I (representing low CO_2 compliance costs), Env II (representing medium CO_2 compliance costs), and Env III (representing high CO_2 compliance costs).

FPL's financial/economic assumptions used in the 2011 feasibility analyses have changed from those used in the 2010 feasibility analyses. The allowed return on equity (ROE) of 10.0% is unchanged, the allowed cost of debt has decreased from 6.48% to 5.50%, and the debt-to-equity ratio has changed from 44.8%/55.2% to 40.88%/59.12%. As a result of these changes, the associated discount rate has decreased slightly from 7.30% to 7.29%.

The remaining three assumptions that are included in this first grouping of assumptions involve the costs of the competing CC capacity used in the feasibility analyses. FPL's current projected (generator only) capital cost of CC capacity is $832/kw in 2018$. The current projected heat rate of this CC capacity is 6,607 BTU/kwh, and the projected firm gas transportation cost is $1.98/mmBTU in 2018. The projected capital cost of the CC unit and firm gas transportation cost are lower than projected in 2010. The projected heat rate value is higher than projected in 2010.

Q. Please discuss the second grouping of other assumptions that primarily address the EPU project.

A. The four assumptions included in this second grouping are:

1) incremental capacity from the EPU project;
2) non-binding capital cost estimate of the EPU project
3) previously spent capital costs for the EPU project that are excluded from the 2011 feasibility analyses; and,
4) the "going forward" capital costs included in the 2011 feasibility analyses.

The assumptions for incremental MW and costs are for FPL's share of the EPU project.

In regard to the first assumption, the projected incremental capacity that FPL's customers will receive from the EPU project, this value has not changed from

the 450 MW used in the 2010 feasibility analyses. However, FPL is now projecting to receive 17 MW Summer and 17 MW Winter from its St. Lucie 2 unit beginning in the Spring of 2011 as a result of the EPU project. (At the time that assumptions were frozen for the feasibility analyses, FPL assumed that this interim increase of 17 MW would occur in April 2011. The interim increase is now projected to occur in May 2011.) These 17 MW represent an "interim" increase from the EPU work for St. Lucie 2. (There are no projected interim capacity increases from EPU work at any of the other three nuclear units.) Previously, FPL had projected that it would receive no incremental capacity at any of the four nuclear units until the EPU work is fully completed. FPL Witness Jones discusses this interim increase in capacity in his testimony.

The combination of the next three assumptions provides the projected incremental capital cost to FPL's customers of completing the EPU project. The projected non-binding capital cost range for the EPU project is discussed in FPL Witness Jones' testimony. In the 2010 feasibility analysis, FPL used the upper end of the then current capital cost range: approximately $2.30 billion. For the 2011 feasibility analyses, FPL is using the upper end of the current capital cost range: approximately $2.48 billion.

FPL Witness Powers provides the sunk cost value for the EPU project in her testimony. In the 2010 feasibility analysis, FPL excluded approximately $0.35

billion of costs that were spent in 2008 and 2009, resulting in a "going forward" capital cost projection for completing the EPU project of approximately $1.95 billion (= $2.30 billion - $0.35 billion). In the 2011 feasibility analyses, FPL is excluding approximately $0.70 billion of sunk costs that have been spent in the 2008 – 2010 time period, resulting in a "going forward" capital cost projection for completing the EPU project of approximately $1.78 billion (= $2.48 billion - $0.70 billion).

Q. Please discuss the third grouping of other assumptions that primarily address the Turkey Point 6 & 7 project.

A. The four assumptions included in this third grouping are:

1) assumed in-service dates for Turkey Point 6 & 7;

2) non-binding capital cost estimate for the new nuclear units;

3) previously spent capital costs that are excluded from the 2011 feasibility analyses; and,

4) the cumulative annual capital expenditure percentages for Turkey Point 6 & 7.

The first of these assumptions, the projected in-service dates, for planning purposes, of Turkey Point 6 & 7 are unchanged from the 2022 and 2023 in-service dates used in the 2010 feasibility analyses. FPL Witness Scroggs' testimony addresses these dates which represent the earliest practical deployment dates for these new units.

The second of these assumptions is the non-binding cost estimate for constructing Turkey Point 6 & 7. The updated range of costs used in the 2011 feasibility analyses is $3,483/kw to $5,063/kw in 2011$. FPL Witness Scroggs' testimony discusses the updating of this assumption.

The third of the assumptions included in this grouping is the previously spent capital costs that are excluded in the 2011 feasibility analysis. In order to account for "sunk" capital costs for the Turkey Point 6 & 7 project, FPL is excluding approximately $129 million of sunk costs that have already been spent in the 2006 – 2010 time period. This represents an increase of approximately $31 million compared to the approximately $98 million sunk cost value utilized in FPL's 2010 feasibility analyses. FPL Witness Powers provides the sunk cost value of the Turkey Point 6 & 7 project in her testimony.

The fourth assumption in this grouping is the cumulative annual capital expenditure percentages for the construction of Turkey Point 6 & 7. The annual expenditure percentage values in the 2011 feasibility analyses are essentially unchanged from the values used in the 2010 feasibility analyses.

Q. It is clear that a number of changes in assumptions were made between those used in the 2010 feasibility analyses and those used in the 2011 feasibility analyses. Were all of these assumption changes favorable to the economics of the EPU and Turkey Point 6 & 7 projects?

A. No. Assumption changes are made on a regular basis by FPL in order to utilize the best and most current information available in its resource planning analyses. Typically, updates to some assumptions are favorable, and changes to other assumptions are unfavorable, for any specific resource option or project.

This was indeed the case for the two nuclear projects in regard to the changes in assumptions from those used in the 2010 feasibility analyses to those used in the 2011 feasibility analyses. Using the EPU project as an example, some updated assumptions (such as the lower fuel cost projections) are unfavorable for the project (although favorable overall for FPL's customers) while other updated assumptions (such as interim incremental capacity from the St. Lucie 2 unit) are favorable for the project (and for FPL's customers).

All of the updated assumptions, whether favorable or unfavorable for the two nuclear projects, were included in FPL's 2011 feasibility analyses.

Q. You have already stated that the assumptions used in FPL's 2011 feasibility analyses have been updated. Would you please discuss the manner in which these assumptions are updated and utilized in this docket?

A. Yes. Assumptions that are used in economic analyses conducted by FPL, such as FPL's 2011 feasibility analyses for this docket, are subject to frequent change. Furthermore, some inputs, such as projected fuel costs, are changing

almost constantly. In order to perform an economic analysis, it is necessary to "freeze" these assumptions at some point so that the analyses can begin. At that point in time, FPL's approach is to utilize these "frozen" assumptions throughout the analyses and all of the subsequent examination of the results of the analyses. In regard to FPL's nuclear feasibility analyses, these assumptions are typically frozen roughly one-to-three months prior to the time that the results of the analyses are presented in testimony filed with the FPSC in order to complete and review the analyses, then incorporate the results of the analyses into FPL's testimony.

Q. Is this approach to freezing assumptions for the annual nuclear feasibility analyses typical in regard to analyses whose results are filed with the FPSC?

A. Yes. In my approximately 20 years of performing analyses for use in FPSC filings, and in presenting analyses results to the FPSC in testimony, this approach of freezing assumptions for use in an FPSC docket has consistently been used. Therefore, I believe that it is customary to use this approach in FPSC dockets. In addition, I believe it is also desirable to use a "frozen" assumption approach through the course of FPSC dockets that address resource options.

Q. Please explain why you believe it is desirable to utilize a frozen assumption approach through the course of FPSC dockets involving resource options.

A. FPSC dockets involving resource options typically last a number of months and generally consist of the following five stages:

- Direct testimony of the utility;
- Discovery by all parties;
- Intervener testimony;
- Rebuttal testimony of the utility; and
- The FPSC hearing.

The first stage, the utility's direct testimony, introduces the assumptions used in its analyses and the results of the analyses using these assumptions. Subsequent stages of the regulatory process use the information presented in the first stage, including the assumptions, as the basis for all of the work that follows.

If the utility were to "unfreeze" assumptions at some later point in the process, it would have to redo its analyses due to the introduction of the new assumption information. As a result, the work that had been performed up to that point by all parties (utility direct testimony, discovery, intervener testimony, and utility rebuttal testimony) would be of reduced value and might have to be discarded entirely. This is especially true when one considers the desirability of using a consistent set of assumptions that are developed at the same point in time. If consideration were to be given for updating a specific assumption at some time after the utility's filing of its direct testimony, then

consideration should be given to updating all assumptions at the same time. If all assumptions were to be updated, then the docket process would essentially be returning to the beginning of the first stage; i.e., the process would be starting over from the beginning.

At a minimum, the introduction of new assumptions would introduce confusion and the possibility of delays into the docket. Neither of these outcomes is desirable.

Q. Does the annual nature of the nuclear cost recovery dockets provide further support for the frozen assumption approach?

A. Yes. The nature of the annual nuclear cost recovery docket process is that assumptions and analyses are required to be updated on a regular basis; i.e., each year. Consequently, the utility, the interveners, and the FPSC annually examine the results of the utility's feasibility analyses using updated assumptions. The fact that each feasibility analysis presented to the FPSC is one of a continuum of feasibility analyses provided over a number of years further supports the frozen assumption approach that FPL utilizes for each individual feasibility analysis filing.

III. 2011 Feasibility Analyses Results for the EPU Project

Q. What resource plans were used to perform the 2011 feasibility analyses of the nuclear uprates project?

A. The two resource plans that were utilized in the 2011 feasibility analyses for the EPU project are presented in Exhibit SRS – 7. As shown in this exhibit, the new generating unit additions in the two resource plans are identical through 2018 except for the addition of the incremental MW from the EPU project in the years 2011 - 2013. The two resource plans begin to differ starting in 2019. In the Resource Plan without EPU, a new CC unit is added in 2019 and another is added in 2021. Due to the 450 MW of additional capacity supplied by the EPU project, the Resource Plan with EPU needs no additional generation in 2019. A new CC unit is added in 2020, but no additional capacity is needed in 2021. Finally, there are also differences between the two resource plans in regard to the amount of "filler unit" capacity added from 2024 – on due to the different amounts of capacity added in the two resource plans through the year 2021.

Q. What were the results of the 2011 feasibility analyses for the EPU project?

A. The results of the 2011 feasibility analyses are presented in Exhibit SRS – 8. As shown in Column (5) of this exhibit, the Resource Plan with the EPU Project is projected to have a lower CPVRR cost in 2011$, compared to the Resource Plan without the EPU Project, in 7 of 7 scenarios of fuel cost and environmental compliance cost forecasts utilized in the analyses.

Q. In addition to the results of these CPVRR-based analyses, did FPL's 2011 feasibility analyses identify any additional advantages for FPL's customers that are projected to be derived from the EPU project?

A. Yes. I will discuss three other advantages to FPL's customers that are projected to result from the EPU project:

1) system fuel savings;

2) system fuel diversity; and,

3) system CO_2 emission reductions.

These advantages will be discussed using the results from the 2011 feasibility analyses for the Medium Fuel Cost, Env II scenario.

In regard to system fuel savings, the CPVRR values for the system fuel savings for each scenario of fuel cost and environmental compliance cost is accounted for in the respective total CPVRR savings number for that scenario. However, it is informative to also look at the annual nominal fuel savings projections.

In 2013, the first year in which the uprated capacity at all four existing nuclear units will be in operation for virtually an entire year, the nuclear uprates are projected to save FPL's customers approximately $106 million (nominal) in fuel costs. Over the life of the current operating license terms of the four uprated nuclear units, the total nominal fuel savings for FPL's customers is projected to be approximately $4.6 billion.

Regarding system fuel diversity, in 2013 the relative percentages of the total energy supplied by FPL that is generated by natural gas and nuclear, without the EPU project, are projected to be approximately 65% and 20%, respectively. With the EPU project, these projected percentages change to approximately 63% for natural gas and 22% for nuclear. Thus FPL is projected to be less reliant on natural gas, and more reliant upon nuclear energy, by approximately 2% each due to the EPU project.

These percentage changes in system fuel use for a system the size of FPL are significant. This can be demonstrated by looking at the projected amount of energy that will be supplied by the nuclear uprates in 2013. That value is approximately 2.9 million MWh. The forecasted annual energy use per residential customer in 2013 is 13,626 kwh. Therefore, the projected output from the nuclear uprates in 2013 will serve the equivalent of the total annual electrical usage of approximately 209,500 residential customers that year.

The improvement in system fuel diversity from the EPU project can also be demonstrated, for illustrative purposes, by looking at the amount of natural gas or oil that would have been needed to produce this same number of approximately 2.9 million MWh in 2013 if that energy had been produced by a conventional steam generating unit with a heat rate of 10,000 BTU/kwh. In such a case, the EPU would have saved approximately 29,000,000 mmBTU of natural gas (if all of this energy had been produced by natural gas), or

4,500,000 barrels of oil (if all of this energy had been produced by oil), in 2013. Similar fossil fuel savings would also occur in each succeeding year.

Finally, in regard to the reduction of system CO_2 emissions, the EPU is projected to result in a cumulative reduction over the current license terms of the nuclear units of approximately 30.5 million tons of CO_2. This will be a significant reduction in CO_2 emissions, representing approximately 75% of the total CO_2 emissions from all FPL-owned generating units in 2010. Stated another way, this projected cumulative CO_2 emission reduction from the EPU project is the equivalent of operating FPL's very large system of generating units for 9 months with zero CO_2 emissions.

Q. You previously mentioned that the EPU project would result in nuclear energy's contribution to FPL's system fuel mix being approximately 22% in 2013. What is nuclear energy's current contribution to FPL's system fuel mix and what is the projected effect of the EPU for the rest of this decade?

A. This information is presented in Exhibit SRS – 9. As shown on the exhibit, nuclear energy's actual contribution to FPL's system fuel mix in 2010 was 20%. Once the EPU project is completed, following increased scheduled outages prior to 2013 in order to perform the work necessary for the capacity uprates, nuclear energy's contribution to FPL's system fuel mix is projected to remain above the 20% level through the rest of the decade. And, as also shown in the exhibit, nuclear energy's contribution without the EPU project

would be projected to be lower than the current 20% contribution from 2013 – on.

Q. What conclusions do you draw from the results of the 2011 feasibility analyses of the EPU project?

A. In regard to these economic feasibility analyses, the EPU is currently projected to be the economic choice in all 7 of the 7 scenarios examined. All of these scenarios assumed the very highest cost value of the projected capital cost range for the project.

In addition, the results of FPL's 2011 analyses show that FPL's customers are projected to significantly benefit from the EPU in regard to system fuel savings, system fuel diversity, and system CO_2 emission reductions once the EPU project is completed.

Furthermore, the EPU project is truly a unique opportunity to offer additional nuclear capacity and energy to FPL's customers. No new sites are required for this additional nuclear capacity, and the construction and permitting times are much less than for a new nuclear unit. Therefore, additional nuclear energy contributions that benefit FPL's customers can be accomplished years earlier through the EPU project than is possible with new nuclear generating units.

Therefore, the EPU project continues to be projected as a solidly cost-effective and valuable capacity and energy addition for FPL's customers. The

results of the 2011 feasibility analyses fully support the continuation of the EPU project.

IV. 2011 Feasibility Analyses Results for Turkey Point 6 & 7

Q. What resource plans were used to perform the 2011 feasibility analyses of Turkey Point 6 & 7?

A. The two resource plans that were utilized in the 2011 feasibility analyses of Turkey Point 6 & 7 are presented in Exhibit SRS – 10. As shown in this exhibit, the two resource plans are identical through 2021. The resource plans differ in 2022 and 2023 with the Resource Plan with Turkey Point 6 & 7 adding the two 1,100 MW nuclear units, one in 2022 and one in 2023. The Resource Plan without Turkey Point 6 & 7 adds two 1,191 MW CC units, one in 2022 and one in 2023. Both resource plans then add a similar amount of CC filler unit capacity through 2040 (although the timing and number of the filler unit additions differ slightly due to the 182 MW greater amount of capacity added in the two-year period of 2022 and 2023 in the Resource Plan without Turkey Point 6 & 7: 1,191 MW – 1,100 MW = 91 MW x 2 units = 182 MW.)

Q. What were the results of the 2011 feasibility analyses for Turkey Point 6 & 7?

A. The results of the 2011 feasibility analyses for Turkey Point 6 & 7 are presented in Exhibit SRS – 11. The breakeven nuclear capital costs in $/kw in 2011$ are presented in Column (6) of this exhibit. The results in Column (6),

when compared to FPL's non-binding estimated range of capital costs in 2011$ of $3,483/kw to $5,063/kw, show that the projected breakeven capital costs for Turkey Point 6 & 7 are above this range (i.e., the results are favorable) in 6 of 7 scenarios of fuel cost and environmental compliance cost. In the remaining scenario, which assumes low fuel costs and low environmental compliance costs for each year throughout the analysis period (i.e., for each year through 2060), the projected breakeven capital cost is within the non-binding estimated capital cost range and is at the upper end of this range.

Q. In addition to the results of these breakeven-based economic analyses, did FPL's 2011 feasibility analyses identify any additional advantages for FPL's customers that are projected to be derived from the Turkey Point 6 & 7 project?

A. Yes. Just as was done in discussing the EPU project, I will discuss three other advantages to FPL's customers that are projected to result from the Turkey Point 6 & 7 project:

1) system fuel savings;
2) system fuel diversity; and,
3) system CO_2 emission reductions.

Similar to the EPU project discussion, these advantages for the Turkey Point 6 & 7 project will be discussed by using the results from the 2011 feasibility analyses for the Medium Fuel Cost, Env II scenario.

In regard to system fuel savings, the CPVRR values for the system fuel savings for each scenario of fuel cost and environmental compliance cost is accounted for in the respective total CPVRR savings number for that scenario. As shown in the Exhibit SRS – 11, these CPVRR savings values are then translated into breakeven costs. Consequently, the system fuel savings have already been accounted for in the breakeven cost values. However, as was the case with the EPU project, it is informative to also look at the annual nominal fuel savings projections for Turkey Point 6 & 7.

In 2024, the first year in which both of the new nuclear units are in service for a full year, Turkey Point 6 & 7 are projected to save FPL's customers approximately $1.07 billion (nominal) in fuel costs. Over the 40-year life of the two new nuclear units assumed (conservatively) for these analyses, the total nominal fuel savings for FPL's customers is projected to be approximately $75 billion (nominal).

Regarding system fuel diversity, in 2024 the relative percentages of the total energy supplied by FPL that is generated by natural gas and nuclear, without Turkey Point 6 & 7, are approximately 72% and 19%, respectively. With Turkey Point 6 & 7, these percentages change to approximately 59% for natural gas and 32% for nuclear. Thus FPL is projected to be less reliant on

natural gas, and more reliant upon nuclear energy, by approximately 13% each.

These percentage changes in system fuel use for a system the size of FPL are significant. This can be demonstrated by looking at the projected amount of energy that will be supplied by the two new nuclear units in 2024. That value is approximately 17.7 million MWh. The forecasted annual energy use per residential customer in 2024 is 14,356 kwh. Therefore, the projected output from Turkey Point 6 & 7 in 2024 will serve the equivalent of the total annual electrical usage of approximately 1,232,100 residential customers in that year.

The improvement in system fuel diversity from Turkey Point 6 & 7 can also be demonstrated, for illustrative purposes, by looking at the amount of natural gas or oil that would have been needed to produce this same number of approximately 17.7 million MWh in 2024 if that energy had been produced by a conventional steam generating unit with a heat rate of 10,000 BTU/kwh. In such a case, Turkey Point 6 & 7 would save approximately 177,000,000 mmBTU of natural gas (if all of this energy had been produced by natural gas), or approximately 27,600,000 barrels of oil (if all of this energy had been produced by oil), in 2024.

Finally, in regard to the reduction of system CO_2 emissions, Turkey Point 6 & 7 are projected to result in a cumulative reduction over the expected life of the

two units of approximately 287 million tons of CO_2. This will be a significant reduction in CO_2 emissions, representing approximately 702% of the total CO_2 emissions from all FPL-owned generating units in 2010. Stated another way, this projected cumulative CO_2 emission reduction from Turkey Point 6 & 7 is the equivalent of operating FPL's very large system of generating units for 7 years with zero CO_2 emissions.

Q. What conclusions do you draw from the results of the 2011 feasibility analyses of Turkey Point 6 & 7?

A. In regard to these economic feasibility analyses, the Turkey Point 6 & 7 project is clearly projected to be the economic choice in 6 of 7 scenarios examined. In the remaining scenario which assumes low fuel costs and low environmental compliance costs throughout the analysis period, the projected breakeven capital cost is within the non-binding estimated capital costs for the new nuclear units, and is at the upper end of that range.

Therefore, the results of the 2011 feasibility analyses show that Turkey Point 6 & 7 continues to be projected as cost-effective. In addition, the results of FPL's 2011 feasibility analyses show that FPL's customers are projected to significantly benefit from Turkey Point 6 & 7 in regard to system fuel savings, system fuel diversity, and system CO_2 emission reductions once the Turkey Point 6 & 7 units go in-service.

These results indicate that the Turkey Point 6 & 7 units continue to be projected as solidly cost-effective and valuable capacity and energy additions for FPL's customers. These conclusions fully support the feasibility of continuing the Turkey Point 6 & 7 project.

Q. Does this conclude your testimony?

A. Yes.

SRS-1

Summary of Results from FPL's 2011 Feasiblity Analyses of the EPU and Turkey Point 6 & 7 Projects

(Plus Results from Additional Analyses)

	EPU Project	Turkey Point 6 & 7 Project
1) Number of fuel cost/environmental compliance cost scenarios in which the nuclear project is projected to be cost-effective:	7 of 7	6 of 7
2) Projected Fuel Savings for FPL's Customers in First Full Year of Operation (Nominal $) *	$106 million	$1,073 million (or $1.07 Billion)
3) Projected Fuel Savings for FPL's Customers Over the Life of the Project (Nominal $)	$4.6 Billion	$75 Billion
4) Projected Percentage of Total FPL Energy Produced from Natural Gas and Nuclear in First Full Year of Operation of Nuclear Project (approx. %):		
- without the Nuclear Project	65% Gas & 20% Nuclear	72% Gas & 19% Nuclear
- with the Nuclear Project	63% Gas & 22% Nuclear	59% Gas & 32% Nuclear
5) Equivalent Approximate Number of Residential Customers' Annual Energy Use Supplied by Nuclear Project in the First Year of the Project	209,500	1,232,100
6) Equivalent Annual Amount of Fossil Fuel Saved by the Nuclear Project Beginning in the First Year of Operation (approx.):		
- Equivalent mmBTU of Natural Gas	29 million	177 million
- Equivalent Barrels of Oil	5 million	28 million
7) Projected Amount of CO_2 Emissions Reduced by Nuclear Project Over the Life of the Project	31 million tons	287 million tons
8) Equivalent Number of Months at Which FPL's Generating System Would Operate with Zero CO_2 Emissions (approx.)	9	84 (or 7 years)

* The first full year of operation for the EPU project is assumed to be 2013. (One of the four existing nuclear units in the project will be operational only 11 months of 2013.) The first full year of operation for the Turkey Point 6 & 7 project is assumed to be 2024.

SRS-2

Comparison of Key Assumptions Utilized in the 2010 and 2011 Feasibility Analyses of FPL Nuclear Projects: Projected Fuel Costs (Medium Fuel Cost Forecast)

(all $ values shown are in Nominal $)

	(1)	(2)	(3) = (2) - (1)
	Forecasted Natural Gas Cost ($/mmBTU)		
Selected Years	2010 Feasibility Analysis	2011 Feasibility Analysis	Change in 2011 Forecast
2011	$6.54	$4.86	($1.68)
2015	$8.25	$6.01	($2.24)
2020	$11.08	$8.62	($2.46)
2025	$13.52	$11.86	($1.66)
2030	$15.32	$13.07	($2.25)
2035	$17.36	$14.35	($3.01)
2040	$19.68	$15.76	($3.92)

	(1)	(2)	(3) = (2) - (1)
	Forecasted 1% S Oil Cost ($/mmBTU)		
Selected Years	2010 Feasibility Analysis	2011 Feasibility Analysis	Change in 2011 Forecast
2011	$12.32	$13.24	$0.92
2015	$16.37	$14.33	($2.04)
2020	$19.63	$19.65	$0.02
2025	$22.33	$22.26	($0.07)
2030	$24.00	$22.62	($1.38)
2035	$25.80	$22.91	($2.89)
2040	$27.73	$23.21	($4.52)

	(1)	(2)	(3) = (2) - (1)
	Forecasted Nuclear Fuel Cost ($/mmBTU)		
Selected Years	2010 Feasibility Analysis	2011 Feasibility Analysis *	Change in 2011 Forecast
2011	$0.65	$0.66	$0.01
2015	$0.79	$0.78	($0.01)
2020	$0.89	$0.88	($0.01)
2025	$1.07	$1.07	$0.00
2030	$1.08	$1.08	$0.00
2035	$1.23	$1.22	($0.00)
2040	$1.39	$1.39	$0.00

* As approved by the FPSC in FPL's recent base rate case, FPL is no longer leasing nuclear fuel. Because of this, the values shown above for nuclear fuel costs for 2011 do not reflect the lease costs that were included in nuclear fuel cost values prior to 2010. There is now a net investment value (NIV) cost associated with nuclear fuel that is not included in the $/mmBTU forecast of nuclear fuel costs. This NIV cost is accounted for as a fixed annual cost in the CPVRR calculations.

SRS-3

Comparison of Key Assumptions Utilized in the 2010 and 2011 Feasibility Analyses of FPL Nuclear Projects: Projected Environmental Compliance Costs: (Env II Forecast)

(all $ values shown are in Nominal $)

	(1)	(2)	(3) = (2) - (1)
Selected Years	Forecasted SO_2 Compliance Cost ($/ton) 2010 Feasibility Analysis	2011 Feasibility Analysis	Change in 2011 Forecast
2015	$2,176	$58	($2,118)
2020	$3,257	$66	($3,191)
2025	$4,882	$74	($4,808)
2030	$5,319	$84	($5,235)
2035	$4,293	$95	($4,198)
2040	$3,278	$108	($3,170)

	(1)	(2)	(3) = (2) - (1)
Selected Years	Forecasted NO_x Compliance Cost ($/ton) 2010 Feasibility Analysis	2011 Feasibility Analysis	Change in 2011 Forecast
2015	$2,071	$522	($1,549)
2020	$3,100	$590	($2,510)
2025	$1,257	$668	($589)
2030	$1,085	$756	($329)
2035	$1,228	$855	($373)
2040	$1,389	$968	($421)

	(1)	(2)	(3) = (2) - (1)
Selected Years	Forecasted CO_2 Compliance Cost ($/ton) 2010 Feasibility Analysis	2011 Feasibility Analysis	Change in 2011 Forecast
2015	$20	$0	($20)
2020	$30	$32	$2
2025	$44	$47	$3
2030	$67	$68	$1
2035	$100	$77	($23)
2040	$149	$88	($61)

SRS-4

Comparison of Key Assumptions Utilized in the 2010 and 2011 Feasibility Analyses of FPL Nuclear Projects: Summer Peak Demand Load Forecast

(Summer MW)

	(1)	(2)	(3) = (2) - (1)	(4)	(5)
Selected Years	2010 Feasibility Analysis	2011 Feasibility Analysis	Change in 2011 Forecast	Annual Growth with 2011 Peak Demand Forecast	Cumulative Growth with 2011 Peak Demand Forecast
2011	21,788	21,679	(109)	---	---
2012	22,139	21,853	(286)	174	174
2013	22,332	22,155	(177)	302	476
2014	23,575	23,452	(123)	1,297	1,773
2015	23,924	24,172	248	720	2,493
2016	24,344	24,605	261	433	2,926
2017	24,774	25,025	251	420	3,346
2018	25,328	25,266	(62)	241	3,587
2019	25,785	25,690	(95)	424	4,011
2020	26,348	26,193	(155)	503	4,514
2021	26,824	26,830	6	637	5,151
2022	27,191	27,523	332	693	5,844
2023	27,929	28,208	279	685	6,529
2024	28,533	28,849	316	641	7,170
2025	29,135	29,525	390	676	7,846
2030	31,691	32,957	1,266	*	*
2035	32,950	35,643	2,693	*	*
2040	35,557	38,508	2,951	*	*

* Annual and cumulative values not shown due to load forecast projections in this exhibit changing from year-to-year values to 5-year intervals.

SRS-5

Projection of FPL's Resource Needs through 2025

(Assuming No EPU, Turkey Point 6 & 7, or Other Capacity Additions)

	(1)	(2)	(3)	(4) = (1) + (2) - (3)	(5)	(6)	(7) = (5) - (6)	(8) = (4) - (7)	(9) = (8) / (7)	(10) = ((7)*1.20)-(4)
August of the Year	Projected FPL Unit Capability (MW)	Projected Firm Capacity Purchases (MW)	Projected Scheduled Maintenance * (MW)	Projected Total Capacity (MW)	Projected Peak Load (MW)	Projected Summer DSM Capability (MW)	Projected Firm Peak Load (MW)	Projected Summer Reserves (MW)	Projected Summer Reserve Margin w/o Additions (%)	**Projected MW Needed to Meet 20% Reserve Margin ** (MW)**
2011	22,462	2,056	350	24,168	21,679	1,981	19,698	4,469	22.7%	(530)
2012	23,437	1,956	1,064	24,329	21,853	2,141	19,712	4,617	23.4%	(674)
2013	24,105	1,956	1,176	24,885	22,155	2,317	19,838	5,047	25.4%	(1,079)
2014	25,317	1,956	1,176	26,097	23,452	2,534	20,918	5,178	24.8%	(995)
2015	25,317	2,046	350	27,013	24,172	2,710	21,462	5,550	25.9%	(1,258)
2016	25,317	740	350	25,707	24,605	2,871	21,734	3,973	18.3%	374
2017	25,317	740	350	25,707	25,025	3,016	22,009	3,698	16.8%	704
2018	25,317	740	350	25,707	25,266	3,149	22,117	3,589	16.2%	834
2019	25,317	740	350	25,707	25,690	3,271	22,419	3,287	14.7%	1,197
2020	25,317	740	350	25,707	26,193	3,371	22,822	2,884	12.6%	1,680
2021	25,317	740	350	25,707	26,830	3,471	23,359	2,347	10.0%	2,325
2022	25,317	740	350	25,707	27,523	3,571	23,952	1,754	7.3%	3,036
2023	25,317	740	350	25,707	28,208	3,671	24,537	1,169	4.8%	3,738
2024	25,317	740	350	25,707	28,849	3,771	25,078	628	2.5%	4,388
2025	25,317	490	350	25,457	29,525	3,871	25,654	(198)	-0.8%	5,329

* MW values shown in Column (3) represent 350 MW on average of scheduled planned maintentance at the Summer peak for all years, an additional 714 MW out-of-service during the Summer of 2012 (St. Lucie 2), and an additional 826 MW out-of-service during the Summer of 2013 and 2014 due to the installation of electrostatic precipitators at FPL's 800 MW generating units.

** MW values shown in Column (10) represent new generating capacity needed to meet the 20% reserve margin criterion.

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Projection of FPL's
Resource Needs through 2025
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SRS-6

Comparison of Key Assumptions Utilized in the 2010 and 2011 Feasibility Analyses of FPL Nuclear Projects: Other Assumptions

Assumption	(1) Value for 2010 Feasibility Analysis	(2) Value for 2011 Feasibility Analysis	(3) = (2) - (1) Change in 2011 Forecast
Assumptions for Feasibility Analyses of Both Projects:			
1) Number of Environmental Compliance Cost Scenarios	3	3	0
2) Financial/Economic Assumptions (Base Case):			
- Capital Structure (debt/equity)	44.8%/55.2%	40.88%/59.12%	(3.92)%/3.92%
- Cost of Debt	6.48%	5.50%	(0.98%)
- Return on Equity	10.00%	10.00%	----
- Discount Rate (after tax)	7.30%	7.29%	(0.01%)
3) CC Generator Capital ($/kw in 2018, w/o AFUDC)	$883	$832	($51)
4) CC Heat Rate (Base 100%, BTU/kwh)	6,480	6,607	127
5) Firm Gas Transportation Cost ($/mmBTU in 2018)	$2.08	$1.98	($0.10)
Assumptions for Feasibility Analyses of the EPU Project: *			
6) Nuclear Uprates Incremental Capacity (MW)	450	450	0
7) Total Capital Cost of Uprates Assumed in Analyses ($ billions, approx.)	$2.30	$2.48	$0.18
8) Previously Spent Capital Costs Now Excluded (approx.$ billions, approx.)	$0.35	$0.70	$0.35
9) "Going Forward" Capital Costs Included in Analyses ($ billions, approx.)	$1.95	$1.78	($0.17)
Assumptions for Feasibility Analyses of Turkey Point 6 & 7:			
10) Assumed In-Service Dates for Turkey Point Units 6 & 7	2022 & 2023	2022 & 2023	----
11) Non-Binding Cost Estimate for New Nuclear Units ($/kw)	$3,397 to $4,940 in 2010$	$3,483 to $5,063 in 2011$	----
12) Previously Spent Capital Costs Now Excluded ($ millions, approx.)	$98	$129	$31
13) Cumulative Annual Capital Expenditure Percentage for TP 6 & 7			
2011	1.2%	1.2%	(0.1) %
2012	1.6%	1.4%	(0.2) %
2013	1.9%	1.9%	0.0 %
2014	3.9%	4.1%	0.2 %
2015	9.5%	9.6%	0.2 %
2016	18.0%	18.1%	0.1 %
2017	29.6%	29.7%	0.1 %
2018	44.4%	44.5%	0.1 %
2019	62.7%	62.8%	0.1 %
2020	78.6%	78.6%	0.0 %
2021	91.2%	91.2%	0.0 %
2022	95.5%	95.5%	0.0 %
2023	100.0%	100.0%	0.0 %

* The EPU project values shown reflect FPL's share of incremental MW and costs.

SRS-7

The Two Resource Plans Utilized in the 2011 Feasibility Analyses of the EPU Project

Resource Plan with EPU	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024 - 2040
- unit(s)/capacity added	WCEC 3 CC added; interim MW from SL 2	EPU (2 units) *	Cape Canaveral Modernization; EPU (all units)*	Riviera Modernization	---	Greenfield 3x1 CC	---	---	---	Greenfield 3x1 CC	---	Turkey Point 6	Turkey Point 7	14,888 MW of CC Filler Unit Capacity
- Projected Summer Reserve Margin	22.7%	23.4%	25.4%	24.8%	25.9%	23.8%	22.2%	21.6%	20.0%	23.1%	20.2%	21.9%	23.4%	(meets criterion in all yrs)

Resource Plan without EPU	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024 - 2040
- unit(s)/capacity added	WCEC 3 CC added	---	Cape Canaveral Modernization	Riviera Modernization	---	Greenfield 3x1 CC	---	---	Greenfield 3x1 CC	---	Greenfield 3x1 CC	Turkey Point 6	Turkey Point 7	13,697 MW of CC Filler Unit Capacity
- Projected Summer Reserve Margin	22.6%	22.2%	23.2%	22.6%	23.8%	21.7%	20.2%	19.6%	23.3%	21.1%	23.4%	25.0%	26.5%	(meets criterion in all yrs)

Notes: - Assumes FPL's current DSM goals through 2019.
- Assumes no peak load or annual energy growth after 2040.
- FPL's reserve margin criterion is 20%.

* One of the four nuclear uprates (SL 2) is projected to provide an interim amount of incremental MW beginning in April 2011 and the full uprate amount beginning by October 2012. Two other uprates (SL 1 and TP 3) are projected to be completed by April 2012 and June 2012, respectively. The fourth unit (TP 4) is projected to be completed by February 2013. For reserve margin calculation purposes, the interim MW of SL 2 are accounted for in 2011, but all of SL 2's capacity is projected to be out of service during the Summer of 2012 due to the uprate outage schedule. The capacity increases for SL 1 and TP 3 are accounted for in Summer 2012. The capacity increase for TP 4 is accounted for in 2013.

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The Two Resource Plans Utilized in the 2011 Feasibility Analyses of the EPU Project
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SRS-8

2011 Feasibility Analyses Results for the EPU Project:

Total Costs and Total Cost Differentials for All Fuel and Environmental Compliance Cost Scenarios in 2011$ (millions, CPVRR, 2011 - 2043)

(1)	(2)	(3)	(4)	(5) = (3) - (4)
Fuel Cost Forecast	Environmental Compliance Cost Forecast	Total Costs for Plans		Total Cost Difference Plan with the EPU Project minus Plan without the EPU Project
		Plan with the EPU Project	Plan without the EPU Project	
High Fuel Cost	Env I	149,902	150,768	(867)
High Fuel Cost	Env II	158,779	159,818	(1,039)
High Fuel Cost	Env III	176,138	177,534	(1,396)
Medium Fuel Cost	Env I	132,029	132,481	(452)
Medium Fuel Cost	Env II	140,793	141,415	(622)
Medium Fuel Cost	Env III	157,806	158,778	(972)
Low Fuel Cost	Env I	114,058	114,089	(31)

Note: A negative value in Column (5) indicates that the Plan with the EPU Project is less expensive than the Plan without the EPU Project. Conversely, a positive value in Column (5) indicates that the Plan with the EPU Project is more expensive than the Plan without the EPU Project.

SRS-9

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2011 Feasibility Analyses
Results for the EPU Project:
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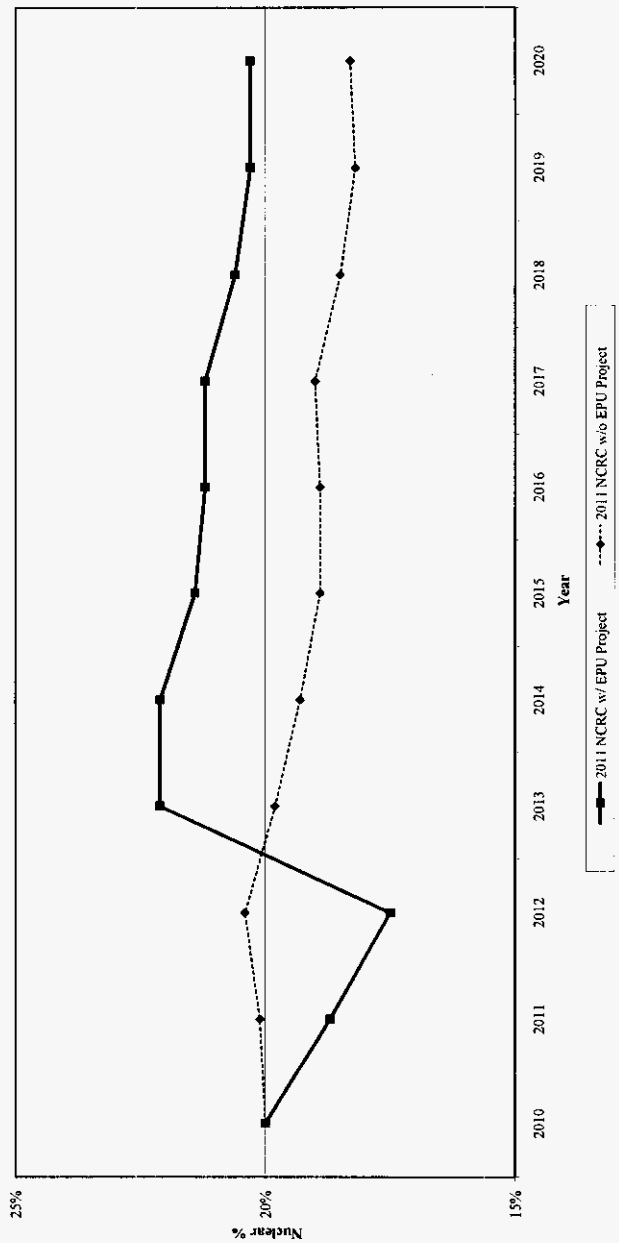
2011 Feasibility Analyses Results for the EPU Project:

Percentage of FPL's Fuel Mix from Nuclear, 2010 - 2020
(2010 Actual and 2011 - 2020 Projections)



SRS-10

The Two Resource Plans Utilized in the 2011 Feasibility Analyses of Turkey Point 6 & 7

Resource Plan with TP 6&7	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024 - 2040
- unit(s)/capacity added	WCEC 3 CC added; interim MW from SL 2	EPU (2 units) *	Cape Canaveral Modernization; EPU (all units)*	Riviera Modernization	—	Greenfield 3x1 CC	---	---	---	Greenfield 3x1 CC	---	Turkey Point 6	Turkey Point 7	14,888 MW of CC Filler Unit Capacity
- Projected Summer Reserve Margin	22.7%	23.4%	25.4%	24.8%	25.9%	23.8%	22.2%	21.6%	20.0%	23.1%	20.2%	21.9%	23.4%	(meets criterion in all yrs)

Resource Plan without TP 6&7	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024 - 2040
- unit(s)/capacity added	WCEC 3 CC added; interim MW from SL 2	EPU (2 units) *	Cape Canaveral Modernization; EPU (all units)*	Riviera Modernization	---	Greenfield 3x1 CC	---	---	---	Greenfield 3x1 CC	---	Greenfield 3x1 CC	Greenfield 3x1 CC	14,292 MW of CC Filler Unit Capacity
- Projected Summer Reserve Margin	22.7%	23.4%	25.4%	24.8%	25.9%	23.8%	22.2%	21.6%	20.0%	23.1%	20.2%	22.2%	24.2%	(meets criterion in all yrs)

Notes: - Assumes FPL's current DSM goals through 2019.
- Assumes no peak load or annual energy growth after 2040.
- FPL's reserve margin criterion is 20%.
- The reserve margin values include the temporary placement of a number of FPL's existing generating units on InActive Reserve status and their return to active service. (However, these actions are not specifically listed in the "unit(s)/capacity added" row.

* One of the four nuclear uprates (SL 2) is projected to provide an interim amount of incremental MW beginning in April 2011 and the full uprate amount beginning by October 2012. Two other uprates (SL 1 and TP 3) are projected to be completed by April 2012 and June 2012, respectively. The fourth unit (TP 4) is projected to be completed by February 2013. For reserve margin calculation purposes, the interim MW of SL 2 are accounted for in 2011, but all of SL 2's capacity is projected to be out of service during the Summer of 2012 due to the uprate outage schedule. The capacity increases for SL 1 and TP 3 are accounted for in Summer 2012. The capacity increase for TP 4 is accounted for in 2013.

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The Two Resource Plans
Utilized in the 2011
Feasibility analyses of Turkey
Point 6&7
Exhibit SRS- 10, Page 1 of 1

SRS-11

2011 Feasibility Analyses Results for Turkey Point 6 & 7:

Total Costs, Total Cost Differentials, and Breakeven Costs for All Fuel and Environmental Compliance Cost Scenarios in 2011$ (millions, CPVRR, 2011 - 2063)

(1)	(2)	(3)	(4)	(5) = (3) - (4)	(6)
Fuel Cost Forecast	Environmental Compliance Cost Forecast	Total Costs for Plans		Total Cost Difference Plan with TP 6 & 7 minus Plan without TP 6 & 7	Breakeven Nuclear Capital Costs ($/kw in 2011$)
		Plan with TP 6 & 7	Plan without TP 6 & 7		
High Fuel Cost	Env I	201,688	216,575	(14,887)	6,908
High Fuel Cost	Env II	213,896	229,814	(15,918)	7,388
High Fuel Cost	Env III	240,992	259,684	(18,692)	8,678
Medium Fuel Cost	Env I	178,857	191,602	(12,744)	5,911
Medium Fuel Cost	Env II	190,751	204,525	(13,774)	6,390
Medium Fuel Cost	Env III	217,502	234,055	(16,552)	7,682
Low Fuel Cost	Env I	155,775	166,365	(10,590)	4,910

Note: A negative value in Column (5) indicates that the Plan with TP 6 & 7 is less expensive than the Plan without TP 6 & 7.
Conversely, a positive value in Column (5) indicates that the Plan with TP 6 & 7 is more expensive that the Plan without TP 6 & 7.

SRS-12

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

FLORIDA POWER & LIGHT COMPANY

DIRECT TESTIMONY OF STEVEN R. SIM

DOCKET NO. 100009- EI

May 3, 2010

Q. Please state your name and business address.

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

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

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

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

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

Q. Please describe your education and professional experience.

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

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

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

Q. Are you sponsoring any exhibits in this case?

A. Yes, I am sponsoring the following 11 exhibits:

- Exhibit SRS – 1: Summary of Results from FPL's 2010 Feasibility Analyses of the Nuclear Uprates and Turkey Point 6 & 7 Projects (Plus Results from Additional Analyses);
- Exhibit SRS – 2: Comparison of Key Assumptions Utilized in the 2009 and 2010 Economic Analyses of FPL Nuclear Projects: Projected Fuel Costs (Medium Fuel Cost Forecast);

- Exhibit SRS – 3: Comparison of Key Assumptions Utilized in the 2009 and 2010 Economic Analyses of FPL Nuclear Projects: Projected Environmental Compliance Costs (Env II Forecast);
- Exhibit SRS – 4: Comparison of Key Assumptions Utilized in the 2009 and 2010 Economic Analyses of FPL Nuclear Projects: Summer Peak Demand Load Forecast;
- Exhibit SRS – 5: Comparison of Key Assumptions Utilized in the 2009 and 2010 Economic Analyses of FPL Nuclear Projects: Other Assumptions;
- Exhibit SRS – 6: The Two Resource Plans Utilized in the 2010 Feasibility Analyses of the Nuclear Uprates;
- Exhibit SRS – 7: 2010 Feasibility Analyses Results for the Nuclear Uprates: Total Costs and Total Cost Differentials for All Fuel and Environmental Compliance Cost Scenarios in 2010$;
- Exhibit SRS – 8: 2010 Feasibility Analyses Results for the Nuclear Uprates: Total Costs and Total Cost Differentials for All Fuel and Environmental Compliance Cost Scenarios in 2010$, Sensitivity Analyses Assuming 11.75% ROE;
- Exhibit SRS – 9: The Two Resource Plans Utilized in the 2010 Feasibility Analyses of Turkey Point 6 & 7;
- Exhibit SRS – 10: 2010 Feasibility Analyses Results for Turkey Point 6 & 7: Total Costs, Total Cost Differentials, and Breakeven Costs for All Fuel and Environmental Compliance Cost Scenarios in 2010$; and,

- Exhibit SRS – 11: 2010 Feasibility Analyses Results for Turkey Point 6 & 7: Total Costs, Total Cost Differentials, and Breakeven Costs for All Fuel and Environmental Compliance Cost Scenarios in 2010$, Sensitivity Analyses Assuming 11.75% ROE.

Q. What is the purpose of your testimony?

A. My testimony provides the results of the 2010 economic analyses for the capacity uprates of FPL's existing nuclear units, and for the new FPL nuclear units, Turkey Point 6 & 7, using current assumptions. In my testimony I will refer to these analyses as the 2010 feasibility analyses for both projects. I also present the results of additional analyses of the two nuclear projects.

The 2010 feasibility analyses are presented to satisfy the requirement of Subsection 5(c)5 of the Florida Administrative Code Rule 25-6.0423, Nuclear Power Plant Cost Recovery which states "By May 1 of each year, along with the filings required by this paragraph, a utility shall submit for Commission review and approval a detailed analysis of the long-term feasibility of completing the power plant."

Q. Has the Florida Public Service Commission provided guidance regarding what is required in these feasibility analyses?

A. Yes. On November 19, 2009, in Order No. PSC-09-0783-FOF-EI, page 14, the Florida Public Service Commission (FPSC) provided such guidance. In regard to analyses of FPL's Turkey Point 6 & 7 units, the relevant part of this order stated:

"On page 29 of Order No. PSC-08-0237-FOF-EI, we provided specific guidance to FPL regarding the requirements necessary to satisfy Rule 25-6.0423(5)(c)5, F.A.C. The Order reads as follows:

> "FPL shall provide a long-term feasibility analysis as part of its annual cost recovery process which, in this case, shall also include updated fuel costs, environmental forecasts, break-even costs, and capital cost estimates. In addition, FPL should account for sunk costs. Providing this information on an annual basis will allow us to monitor the feasibility regarding the continued construction of Turkey Point 6 and 7."

Q. What is the scope of your testimony?

A. My testimony addresses four main points:

(1) The analytical approaches used in FPL's 2010 feasibility analyses are briefly discussed and compared to the analytical approaches utilized in prior economic analyses of the two nuclear projects.

(2) Various updated assumptions used in the 2010 feasibility analyses are compared to the assumptions that were previously used in the 2009 analyses. The resulting "directions" of these assumption changes, in regard to the economics of the nuclear projects being favorable or unfavorable, are also briefly discussed.

(3) The results of the 2010 feasibility analyses, plus the results of other analyses, of the nuclear uprates are provided.

(4) The results of the 2010 feasibility analyses, plus the results of other analyses, of Turkey Point 6 & 7 are provided.

Other feasibility-related topics for the nuclear uprates project are discussed by FPL Witness Jones in section 7 of his testimony. Additionally, other feasibility-related topics for the Turkey Point 6 & 7 project are discussed by FPL Witness Scroggs in section 9 of his testimony.

Q. Please summarize your testimony.

A. In its 2010 feasibility analyses, FPL utilized analytical approaches that it believes are currently the best approaches with which to evaluate the two nuclear projects. FPL also utilized an updated set of assumptions in its 2010 feasibility analyses.

The results of the 2010 feasibility analyses for both projects, plus the results of additional analyses, are summarized in Exhibit SRS – 1. This exhibit presents the following information:

1) Both nuclear projects are projected overwhelmingly to be cost-effective for FPL's customers. Both the nuclear uprates and Turkey Point 6 & 7 are projected to be cost-effective in all 7 of 7 base case scenarios of fuel costs and environmental compliance costs. The nuclear uprates project is also projected to be cost-effective in 20 of 21

sensitivity analyses and the Turkey Point 6 & 7 project is also projected to be clearly cost-effective in 6 of 7 sensitivity analyses.

2) The projected nominal fuel savings for FPL's customers from the two nuclear projects are significant. Using a Medium fuel cost/Medium environmental compliance cost (Env II) scenario as an example, the nuclear uprates are projected to save approximately $146 million (nominal) in fuel costs in their first full year of operation. Turkey Point 6 & 7 are projected to save approximately $1.3 billion (nominal) in fuel costs in the first full year of operation for both units.

3) Using the same fuel cost/environmental compliance cost scenario, the nuclear uprates are projected to save approximately $6 billion (nominal) in fuel costs over the life of the project, and Turkey Point 6 & 7 are projected to save approximately $95 billion (nominal) over the life of the units.

4) The two nuclear projects will also significantly improve the fuel diversity of the FPL system. In their first full year of operation, the nuclear uprates are projected to reduce FPL's dependence upon natural gas by approximately 3% and Turkey Point 6 & 7 are projected to reduce FPL's dependence upon natural gas by approximately another 12%. Nuclear energy from these projects will supply the amounts of energy that would otherwise have been supplied by natural gas.

5) The amounts of energy that nuclear energy is projected to supply in the first full year of operation (and in subsequent years) for the two

nuclear projects is equivalent to the total annual energy usage of approximately 229,000 residential customers for the nuclear uprates, and of approximately 1,259,000 residential customers for Turkey Point 6 & 7.

6) Stated another way, these amounts of energy projected to be supplied respectively by the two projects will save enormous amounts of fossil fuel. For illustrative purposes, if the same amounts of energy were to be supplied by conventional steam generating units, then the amount of energy mentioned above for the nuclear uprates would require the consumption of approximately 31 million mmBTU of natural gas or 5 million barrels of oil annually. Likewise, the amount of energy mentioned above for Turkey Point 6 & 7 would require the consumption of approximately 177 million mmBTU of natural gas or 28 million barrels of oil annually.

7) The projected reductions in carbon dioxide (CO_2) emissions are also very large. Over the life of the projects, the nuclear uprates and Turkey Point 6 & 7 are projected to reduce CO_2 emissions by approximately 33 million tons and 284 million tons, respectively.

8) Stated another way, these projected amounts of total CO_2 reductions are equivalent to operating all of FPL's generating system with zero CO_2 emissions for approximately 10 months in the case of the nuclear uprates, and for approximately 7 years in the case of Turkey Point 6 & 7.

Therefore, the results of FPL's 2010 feasibility analyses are that both the nuclear uprates and Turkey Point 6 & 7 are projected to be solidly cost-effective and valuable capacity and energy additions for FPL's customers. These results fully support the feasibility of continuing both nuclear projects.

I. 2010 Feasibility Analyses – Analytical Approaches

Q. Were the analytical approaches used in FPL's 2010 feasibility analyses of the nuclear uprates and Turkey Point 6 & 7 similar to the approaches used in the Determination of Need filings for these projects, and in the feasibility analyses of these projects that were presented in previous NCRC filings?

A. Yes. The analytical approaches that were used in the 2010 feasibility analyses for both the nuclear uprates and Turkey Point 6 & 7 projects were virtually identical to the approaches used in the 2007 Determination of Need filings and in the feasibility analyses presented in the 2008 and 2009 NCRC filings.

Q. Please describe these analytical approaches.

A. In regard to the nuclear uprates project, the analytical approach used is the direct comparison of the cumulative present value of revenue requirements (CPVRR) for resource plans with and without the nuclear uprates. FPL believes this is the appropriate approach for analyzing this project. And, as previously stated, this analytical approach was utilized in the 2007

Determination of Need filing, and in the 2008 and 2009 NCRC filings, for the nuclear uprates project.

In regard to the Turkey Point 6 & 7 project, the analytical approach used is the calculation of breakeven overnight capital costs (in terms of $/kw) for the new nuclear units. FPL believes that this is the appropriate approach for analyzing this project at this time. And, as previously stated, this analytical approach was utilized in the 2007 Determination of Need filing, and in the 2008 and 2009 NCRC filings, for the Turkey Point 6 & 7 project. In later years, as more information becomes available regarding the cost and other aspects of the new nuclear units, another analytical approach may emerge as more appropriate.

Q. Please provide an overview of these analytical approaches.

A. The basic analytical approach in the feasibility analyses is to compare competing resource plans. FPL utilizes resource plans in its analyses in order to ensure that all relevant impacts to the FPL system are accounted for.

The analysis of each resource plan is a complex undertaking. For each resource plan, annual projections of system fuel costs and emission profiles, for each scenario of fuel cost/environmental compliance cost, are developed using a sophisticated production costing model. This model, the P-MArea model, simulates the FPL system and dispatches all of the generating units on an hour-by-hour basis for each year in the analysis. The resulting fuel cost

and emission profile information is then combined with projected annual capital, operation and maintenance (O&M), etc. costs for each resource plan. In this way, a comprehensive set of projected annual costs, for each year of the analysis, is developed for each resource plan.

One resource plan contains the nuclear resource option that is being evaluated in a specific feasibility analysis; i.e., either the nuclear uprates or the Turkey Point 6 & 7 units. The other resource plan contains another, non-nuclear resource option that competes with this nuclear resource option. The competing resource option is a new highly fuel-efficient type of combined cycle (CC) generating unit that FPL has projected for its modernization projects at its existing Cape Canaveral and Riviera power plant sites.

The competing resource plans are then analyzed over a multi-year period. This approach allows FPL's analyses to account for both short-term and long-term impacts of the resource options being evaluated. FPL's 2010 feasibility analyses address these cost impacts. In addition, my testimony provides a discussion of certain non-economic impacts, increased system fuel diversity and system emission reductions, which will result from the two nuclear projects.

II. 2010 Feasibility Analyses – Updated Assumptions

Q. Do FPL's 2010 feasibility analyses utilize updated assumptions for the specific information referred to in the FPSC's recent Order?

A. Yes. FPL typically seeks to utilize a set of updated assumptions in its resource planning work. In early 2010, FPL updated these assumptions and is using them in all of its 2010 resource planning work including the analyses presented in this docket.

In regard to the recent FPSC Order, five informational items were listed that should be updated and included in FPL's annual long-term feasibility analyses of Turkey Point 6 & 7. These five items are:

(1) fuel forecasts;

(2) environmental forecasts;

(3) breakeven costs;

(4) capital cost estimates; and,

(5) sunk costs.

FPL's 2010 feasibility analyses for Turkey Point 6 & 7 include FPL's current assumptions for each these five items. In regard to FPL's feasibility analyses for the nuclear uprates, FPL has included current assumptions for four of these five items: items (1), (2), (4), and (5). Because the analytical approach for the

nuclear uprates utilizes CPVRR results instead of the breakeven capital cost results used in the analyses of Turkey Point 6 & 7, item (3) (breakeven costs) is not relevant to analyses of the nuclear uprates.

Q. Do FPL's feasibility analyses include FPL's updated assumptions for information other than these 5 items?

A. Yes. FPL updated a number of other assumptions in early 2010 in preparation for all of its 2010 resource planning work. Consequently, these other updated assumptions are also included in FPL's 2010 feasibility analyses. A partial listing of these other assumptions include: FPL's load forecast, projected incremental capacity from the nuclear uprates, assumed in-service dates for Turkey Point 6 & 7, and financial/economic assumptions.

Q. Please discuss the changes in the forecasted values for fuel costs, environmental compliance costs, and peak load between the forecasts utilized in the 2010 feasibility analyses and those that were used in the 2009 feasibility analyses.

A. Exhibits SRS – 2 through SRS - 4 provide these comparisons. Exhibit SRS - 2 provides 2009 and 2010 forecasted Medium fuel cost values for selected years for natural gas, oil, and nuclear fuel costs. As shown in this exhibit, the Medium fuel cost forecast in 2010 for natural gas is lower in the early years compared to the 2009 forecast. The annual differences in natural gas cost between the two forecasts decrease over time. A comparison of the forecasted prices for 1% sulfur oil shows a similar pattern, but with the 2010 forecasted

values being higher in the early years than the 2009 forecasted values. The annual differences between the two oil cost forecasts also diminish over time. In regard to forecasted nuclear fuel costs, the 2010 and 2009 forecasted prices on a $/mmBTU basis are presented. However, the comparison is not on an "apples-to-apples" basis. As indicated by the footnote on this exhibit, FPL is no longer leasing nuclear fuel as was the case in 2009. Therefore, the lease cost component that was included in the 2009 nuclear fuel cost forecast is no longer included in the 2010 forecast. In its place, there is now a net investment value (NIV) cost associated with nuclear fuel that is not included in the $/mmBTU forecast of nuclear fuel costs. This NIV cost is accounted for as a fixed annual cost in the feasibility analyses.

This change in how total nuclear fuel costs are accounted for in economic analyses, such as the feasibility analyses presented in this docket, affects nuclear fuel costs for FPL's existing nuclear capacity, the uprates project, and the Turkey Point 6 & 7 project.

Exhibit SRS – 3 presents similar 2009 and 2010 information for forecasted Env II (i.e., mid-level) environmental compliance costs for three types of air emissions: sulfur dioxide (SO_2), nitrogen oxides (NO_x), and carbon dioxide (CO_2). As shown on the exhibit, the forecasted compliance costs for both SO_2 and NO_x are generally higher with the 2010 forecast compared to the 2009 forecast. The forecasted compliance costs for CO_2 with the 2010

forecast are generally slightly higher, but overall show relatively little change, compared to the 2009 forecast.

Exhibit SRS – 4 presents the 2009 and 2010 Summer peak load forecasts. As shown in this exhibit, the 2010 forecast of future peak load shows higher peak loads through 2014, then lower peak loads for 2015 – on, compared to the 2009 forecast.

Q. What other assumptions changed from the 2009 analyses to the 2010 analyses?

A. Exhibit SRS – 5 presents the 2009 and 2010 projections for 13 other assumptions that were utilized in the feasibility analyses. These other assumptions are grouped into three categories of either four or five assumptions each: (i) assumptions used in the feasibility analyses of both projects; (ii) assumptions primarily used only in the feasibility analyses of the nuclear uprates project; and (iii) assumptions primarily used only in the feasibility analyses of the Turkey Point 6 & 7 project. (Note that some of the assumptions included in the second and third groupings do have an impact in the feasibility analyses of both projects. Examples of such assumptions are the incremental capacity of the nuclear uprates and the in-service dates of Turkey Point 6 & 7. The grouping of assumptions such as these into either the second or third groupings is done solely to facilitate discussion in this testimony of the changes in assumptions.)

Q. Please discuss the first grouping of these other assumptions; i.e., those assumptions that are applicable in the feasibility analyses for both projects.

A. The five assumptions included in this grouping are:

1) the number of environmental compliance cost scenarios;

2) financial/economic assumptions;

3) the capital cost of competing CC capacity;

4) the heat rate of competing CC capacity; and,

5) the projected cost of firm gas transportation.

In regard to the number of environmental compliance cost scenarios utilized in FPL's 2010 feasibility analyses, FPL is using three such scenarios in its 2010 resource planning work: Env I (representing low CO_2 compliance costs), Env II (representing medium CO_2 compliance costs), and Env III (representing high CO_2 compliance costs). FPL is no longer using an Env IV scenario (representing very high CO_2 costs).

FPL's financial/economic assumptions used in the feasibility analyses were driven by the outcome of FPL's just concluded base rate case. The allowed return on equity (ROE) is now 10.0%, the allowed cost of debt is now 6.48%, and the associated discount rate is now 7.30%. The changes in these assumptions are significant and are discussed later in this testimony.

The remaining three assumptions that are included in this first grouping of assumptions involve the costs of the competing CC capacity used in the feasibility analyses. FPL's current projected (generator only) capital cost of CC capacity is $875/kw in 2018$. The current projected heat rate of this CC capacity is 6,480 BTU/kwh, and the projected firm gas transportation cost is $2.08/mmBTU in 2018.

Q. Please discuss the second grouping of other assumptions that primarily address the nuclear uprates project.

A. The four assumptions included in this second grouping are:

1) incremental capacity from the uprates;
2) non-binding capital cost estimate of the uprates;
3) previously spent capital costs for the uprates that are excluded from the 2010 feasibility analyses; and,
4) the "going forward" capital costs included in the 2010 feasibility analyses.

The assumptions for incremental MW and costs are for FPL's share of the nuclear uprates project.

In regard to the first assumption, the projected incremental capacity that FPL's customers will receive from the nuclear uprates, this value has increased from the 399 MW used in the 2009 feasibility analyses to 450 MW for the 2010

analyses. FPL Witness Jones discusses this assumption change in his testimony.

The combination of the next three assumptions provides the projected incremental capital cost to FPL's customers of completing the nuclear uprates project. In the 2009 feasibility analyses, FPL projected a non-binding total capital cost estimate for FPL's share of the project of $1.724 billion. In the 2009 analyses, no previously spent costs were excluded. Therefore, the 2009 feasibility analysis assumed an incremental capital cost to complete the uprates project of $1.724 billion.

The projected non-binding capital cost range for the nuclear uprates project is discussed in FPL Witness Jones' testimony. For the 2010 feasibility analysis, FPL is using the very upper end of that range: $2.300 billion. In order to account for "sunk" capital costs for the uprates project in its 2010 feasibility analysis, FPL is excluding approximately $347 million of costs that have already been spent in 2008 and 2009. FPL Witness Powers discusses the sunk cost value for this project in her testimony. The resulting "going forward" capital cost projection for completing the project that is used in FPL's 2010 feasibility analyses is $1.953 billion (= $2.300 billion - $0.347 billion).

Q. Please discuss the third grouping of other assumptions that primarily address the Turkey Point 6 & 7 project.

A. The four assumptions included in this third grouping are:

1) assumed in-service dates for Turkey Point 6 & 7;

2) non-binding capital cost estimate for the new nuclear units;

3) previously spent capital costs that are excluded from the 2010 feasibility analyses; and,

4) the cumulative annual capital expenditure percentages for Turkey Point 6 & 7.

The first of these assumptions, the projected in-service dates, for planning purposes, of Turkey Point 6 & 7 have changed from 2018 and 2020, respectively, used in the 2009 feasibility analyses, to 2022 and 2023 for the 2010 feasibility analyses. FPL Witness Scroggs' testimony addresses this change.

The second of these assumptions is the non-binding cost estimate for constructing Turkey Point 6 & 7. The updated range of costs used in the 2010 feasibility analyses is $3,397/kw to $4,940/kw in 2010$. FPL Witness Scroggs' testimony discusses the updating of this assumption.

The third of the assumptions included in this grouping is the previously spent capital costs that are excluded in the 2010 feasibility analysis. In order to account for "sunk" capital costs for the Turkey Point 6 & 7 project, FPL is excluding approximately $98 million of costs that have already been spent in

2008 and 2009. FPL Witness Powers discusses the sunk cost value of this project in her testimony.

The fourth assumption in this grouping is the cumulative annual capital expenditure percentages for the construction of Turkey Point 6 & 7. Due to the change in the assumed in-service dates for Turkey Point 6 & 7, the annual expenditure percentage values in the 2010 feasibility analyses are revised and extended through 2023. FPL Witness Scroggs' testimony addresses this assumption.

Q. It is clear that a number of changes in assumptions were made between those used in the 2009 feasibility analyses and those used in the 2010 feasibility analyses. Were all of these assumption changes favorable to the economics of the two nuclear projects?

A. No. Assumption changes are made on a regular basis by FPL in order to utilize the best and most current information available in its resource planning analyses. Typically, updates to some assumptions are favorable, and changes to other assumptions are unfavorable, for any specific project.

This was indeed the case for the two nuclear projects in regard to the changes in assumptions from those used in the 2009 feasibility analyses to those used in the 2010 feasibility analyses. Using the nuclear uprates project as an example, some updated assumptions (such as the higher projected capital cost

estimate) are unfavorable while other updated assumptions (such as the higher projected incremental MW) are favorable.

All of the updated assumptions, whether favorable or unfavorable for the two nuclear projects, were included in FPL's 2010 feasibility analyses.

Q. Earlier in your testimony you stated that the impact of the changes in financial/economic assumptions was significant. Please discuss the reasons for the significant impact.

A. The changes in the financial/economic assumptions that resulted from the recent base rate case had a significant impact on the results of the 2010 feasibility analyses for two primary reasons. First, as a consequence of the lower allowed ROE and cost of debt values, the projected capital costs of the capital-intensive nuclear projects are substantially lowered relatively to the less capital-intensive CC capacity. Second, the lower discount rate, which is a direct result of the lower allowed ROE and cost of debt values, results in higher net present values for the system fuel and environmental compliance cost savings from the nuclear projects in future years.

The combination of lower capital costs, and higher net present value system fuel and environmental compliance cost savings, for the nuclear projects that result from the changes in the financial/economic assumptions enhance the economics of these projects.

These updated financial/economic assumptions are not representative of the financial/economic values that have been in place in recent years (including during the Determination of Need filings for these projects). In order to provide an additional financial/economic perspective from which to gauge these nuclear projects, FPL has performed sensitivity analyses in which it used an ROE value of 11.75% which is representative of the ROE value that has been applicable in recent years. The results of these sensitivity analyses are presented in sections III and IV of this testimony.

Q. One item that was not mentioned in the previous discussion of changes in assumptions is a projection of FPL's resource needs. Why was this not mentioned and what is FPL's current projected need for additional resources?

A. The reason that FPL's projected need for additional resources was not mentioned in the discussion of assumptions is that the projected resource need can be considered to be a result of analyses that use the updated assumptions, not an assumption per se.

After accounting for the relevant updated assumptions (such as FPL's updated load forecast), plus the new DSM goals that the FPSC established for FPL, and the FPSC-approved new capacity additions (WCEC 3, nuclear uprates, and the projected modernizations at the existing Cape Canaveral and Riviera sites), FPL currently projects that its next resource need is in 2022. FPL also projects that its resource needs will increase every year thereafter.

The fact that FPL's first resource need is currently projected to be in 2022 is evident in Exhibits SRS - 6 and SRS - 9 which present the resource plans utilized in FPL's 2010 feasibility analyses. Three of the four resource plans presented include the nuclear uprates in the resource plan. In each of those three resource plans, the first resource need (which is indicated by the year in which the first capacity option is added) occurs in 2022. In the fourth resource plan, the Resource Plan without Nuclear Uprates shown in Exhibit SRS – 6, the nuclear uprates are not included. In that resource plan, the first resource need (which is again indicated by the year of the first capacity addition) occurs in 2021.

Therefore, this current projection of resource needs actually matches well with the updated assumption, for planning purposes, of 2022 and 2023 in-service dates for Turkey Point 6 & 7.

III. 2010 Feasibility Analyses Results for the Nuclear Uprates

Q. What resource plans were used to perform the 2010 feasibility analyses of the nuclear uprates project?

A. The two resource plans that were utilized in the 2010 feasibility analyses are presented in Exhibit SRS – 6. As shown in this exhibit, the new generating unit additions in the two resource plans are identical through 2020 except for

the addition of the nuclear uprates. The 450 MW of incremental capacity projected to be added from the nuclear uprates in the Plan with Nuclear Uprates does defer the addition of new generation, but only starting in the year 2021. (The additional capacity supplied by the nuclear uprates also slightly alters the schedule for the return to active service of FPL's existing generating units that are being temporarily placed on Inactive Reserve status.)

Q. What were the results of the 2010 feasibility analyses for the nuclear uprates?

A. The results of the base case analyses are presented in Exhibit SRS – 7. As shown in Column (5) of this exhibit, the Resource Plan with Nuclear Uprates is projected to have a lower CPVRR cost in 2010$, compared to the Resource Plan without Nuclear Uprates, in 7 of 7 scenarios of fuel cost and environmental compliance cost forecasts utilized in the analyses.

Q. You mentioned earlier that FPL performed sensitivity analyses in which it assumed an ROE of 11.75% instead of the currently allowed ROE of 10.0%. What were the results of these sensitivity analyses for the nuclear uprates?

A. The results of these sensitivity analyses are presented in Exhibit SRS – 8. As shown in Column (5) of this exhibit, the Resource Plan with Nuclear Uprates is again projected to have a lower CPVRR cost in 2010$, compared to the Resource Plan without Nuclear Uprates, in 7 of 7 scenarios of fuel cost and environmental compliance cost forecasts.

Q. Were any other sensitivity analyses performed?

A. Yes. As previously mentioned, the current projection for the expected incremental capacity that will be provided by the nuclear uprates is 450 MW. This represents a projected increase of 51 MW from the 399 MW value used in the 2009 feasibility analyses. FPL performed sensitivity analyses using the incremental MW value of 399 MW that had been used in previous analyses despite that fact that FPL is confident that the incremental MW value will significantly exceed this value.

The results of these sensitivity analyses, using an incremental MW value for the nuclear uprates of 399 MW and an ROE of 10.0%, were that the Resource Plan with Nuclear Uprates is again projected to have a lower CPVRR cost in 2010$, compared to the Resource Plan without Nuclear Uprates, in 7 of 7 scenarios of fuel cost and environmental compliance cost forecasts.

These sensitivity analyses, regarding an incremental MW value of 399 MW, were then repeated using the economic sensitivity assumption of an 11.75% ROE. The results were that the Resource Plan with Nuclear Uprates is projected to have a lower CPVRR cost in 2010$, compared to the Resource Plan without Nuclear Uprates, in 6 of 7 scenarios of fuel cost and environmental compliance cost forecasts. Only in the sole scenario of Low Fuel Cost and low environmental compliance cost (Env I), combined with the much lower incremental MW value and the higher ROE value, was the

Resource Plan with Nuclear Uprates projected to be less economic than the Resource Plan without Nuclear Uprates.

Q. In addition to the results of these CPVRR-based analyses, did FPL's 2010 feasibility analyses identify any additional advantages for FPL's customers that are projected to be derived from the nuclear uprates project?

A. Yes. I will discuss three other advantages to FPL's customers that are projected to result from the nuclear uprates:

1) system fuel savings;
2) system fuel diversity; and,
3) system CO_2 emission reductions.

These advantages will be discussed using the results from the 2010 feasibility analyses for the Medium Fuel Cost, Env II scenario.

In regard to system fuel savings, the CPVRR values for the system fuel savings for each scenario of fuel cost and environmental compliance cost is accounted for in the respective total CPVRR savings number for that scenario. However, it is informative to also look at the annual nominal fuel savings projections.

In 2013, the first year in which the uprated capacity at all four existing nuclear units will be in operation for virtually an entire year, the nuclear uprates are projected to save FPL's customers approximately $146 million (nominal) in fuel costs. Over the life of the current operating license terms of the four uprated nuclear units, the total nominal fuel savings for FPL's customers is projected to be approximately $6.3 billion.

Regarding system fuel diversity, in 2013 the relative percentages of the total energy supplied by FPL that is generated by natural gas and nuclear, without the nuclear uprates project, are projected to be approximately 63% and 21%, respectively. With the nuclear uprates project, these projected percentages change to approximately 60% for natural gas and 24% for nuclear. Thus FPL is projected to be less reliant on natural gas, and more reliant upon nuclear energy, by approximately 3% each due to the nuclear uprates.

These percentage changes in system fuel use for a system the size of FPL are significant. This can be demonstrated by looking at the projected amount of energy that will be supplied by the uprates in 2013. That value is approximately 3.1 million MWh. The forecasted annual energy use per residential customer in 2013 is 13,570 kwh. Therefore, the projected output from the nuclear uprates in 2013 will serve the equivalent of the total annual electrical usage of approximately 229,000 residential customers that year.

The improvement in system fuel diversity from the nuclear uprates can also be demonstrated, for illustrative purposes, by looking at the amount of natural gas or oil that would have been needed to produce this same number of approximately 3.1 million MWh in 2013 if that energy had been produced by a conventional steam generating unit with a heat rate of 10,000 BTU/kwh. In such a case, the nuclear uprates would have saved approximately 31,000,000 mmBTU of natural gas (if all of this energy had been produced by natural gas), or 4,800,000 barrels of oil (if all of this energy had been produced by oil), in 2013. Similar fossil fuel savings would also occur in each succeeding year.

Finally, in regard to the reduction of system CO_2 emissions, the nuclear uprates are projected to result in a cumulative reduction over the current license terms of the nuclear units of approximately 32.6 million tons of CO_2. This will be a significant reduction in CO_2 emissions, representing approximately 80% of the total CO_2 emissions from FPL-owned generating units in 2009. Stated another way, this projected cumulative CO_2 emission reduction from the nuclear uprates is the equivalent of operating FPL's very large system of generating units for 10 months with zero CO_2 emissions.

Q. What conclusions do you draw from the results of the 2010 feasibility analyses of the nuclear uprates?

A. In regard to these economic feasibility analyses, the nuclear uprates project is currently projected to be the economic choice in 27 of 28 scenarios examined.

All of these scenarios assumed the very highest cost value of the projected capital cost range for the project. The sole scenario in which the uprates were not projected to be economic was a scenario which combined low fuel costs, low environmental compliance costs, much lower than expected incremental MW from the uprates, and an ROE of 11.75%.

In addition, the results of FPL's 2010 feasibility analyses show that FPL's customers are projected to significantly benefit from the nuclear uprates in regard to system fuel savings, system fuel diversity, and system CO_2 emission reductions.

Furthermore, the nuclear uprates project is truly a unique opportunity to offer additional nuclear capacity and energy to FPL's customers. No new sites are required for this additional nuclear capacity, and the construction and permitting times are much less than for a new nuclear unit. Therefore, additional nuclear energy contributions that benefit FPL's customers can be accomplished years earlier through the nuclear uprates project than is possible with new nuclear generating units.

Therefore, the nuclear uprates continue to be projected as a solidly cost-effective and valuable capacity and energy addition for FPL's customers. The results of the 2010 feasibility analyses fully support the continuation of the nuclear uprates project.

IV. 2010 Feasibility Analyses Results for Turkey Point 6 & 7

Q. What resource plans were used to perform the 2010 feasibility analyses of Turkey Point 6 & 7?

A. The two resource plans that were utilized in the 2010 feasibility analyses are presented in Exhibit SRS – 9. As shown in this exhibit, the two resource plans are identical through 2021. The resource plans differ in 2022 and 2023 with the Resource Plan with Turkey Point 6 & 7 adding the two 1,100 MW nuclear units, one in 2022 and one in 2023. The Resource Plan without Turkey Point 6 & 7 adds two 1,212 MW CC units, one in 2022 and one in 2023. Both resource plans then add an equal amount of CC filler unit capacity through 2040 (although the timing of the filler unit additions differ slightly due to the 224 MW greater amount of capacity added in the two-year period of 2022 and 2023 in the Resource Plan without Turkey Point 6 & 7; 1,212 MW – 1,100 MW = 112 MW x 2 units = 224 MW.)

Q. What were the results of the 2010 feasibility analyses for Turkey Point 6 & 7?

A. The results of the base case analyses are presented in Exhibit SRS – 10. The breakeven nuclear capital costs in $/kw in 2010$ are presented in Column (6) of this exhibit. The results in Column (6), when compared to FPL's non-binding estimated range of capital costs in 2010$ of $3,397/kw to $4,940/kw, show that the projected breakeven capital costs for Turkey Point 6 & 7 are

above this range in 7 of 7 scenarios of fuel cost and environmental compliance cost.

Q. What were the results of the sensitivity analyses for Turkey Point 6 & 7 in which an ROE of 11.75% was substituted for the currently allowed ROE value of 10.0%?

A. The results of these sensitivity analyses are presented in Exhibit SRS – 11. The breakeven nuclear capital costs in $/kw in 2010$ are presented in Column (6) of this exhibit. The results in Column (6), when compared to FPL's non-binding estimated range of capital costs in 2010$ of $3,397/kw to $4,940/kw, show that the projected breakeven capital costs for Turkey Point 6 & 7 are above this range in 6 of 7 scenarios of fuel cost and environmental compliance cost. In the remaining scenario, a scenario comprised of both Low Fuel Costs, low environmental compliance costs (Env I), and an 11.75% ROE, the projected breakeven capital costs of $4,764/kw are within, and at the upper end of, this cost range.

Q. In addition to the results of these breakeven-based economic analyses, did FPL's 2010 feasibility analyses identify any additional advantages for FPL's customers that are projected to be derived from the Turkey Point 6 & 7 project?

A. Yes. I will discuss three other advantages to FPL's customers that are projected to result from the Turkey Point 6 & 7 project:

1) system fuel savings;

2) system fuel diversity; and,

3) system CO_2 emission reductions.

These advantages for the Turkey Point 6 & 7 project will again be discussed by using the results from the 2010 feasibility analyses for the Medium Fuel Cost, Env II scenario.

In regard to system fuel savings, the CPVRR values for the system fuel savings for each scenario of fuel cost and environmental compliance cost is accounted for in the respective total CPVRR savings number for that scenario. As shown in the exhibits SRS – 10 and SRS – 11, these CPVRR savings values are then translated into breakeven costs. Consequently, the system fuel savings have already been accounted for in the breakeven cost values. However, as was the case with the nuclear uprates project, it is informative to also look at the annual nominal fuel savings projections for Turkey Point 6 & 7.

In 2024, the first year in which both of the new nuclear units are in service for a full year, Turkey Point 6 & 7 are projected to save FPL's customers approximately $1.28 billion (nominal) in fuel costs. Over the expected 40-year life of the two new nuclear units, the total nominal fuel savings for FPL's customers is projected to be approximately $95 billion (nominal).

Regarding system fuel diversity, in 2024 the relative percentages of the total energy supplied by FPL that is generated by natural gas and nuclear, without Turkey Point 6 & 7, are approximately 70% and 20%, respectively. With Turkey Point 6 & 7, these percentages change to approximately 58% for natural gas and 32% for nuclear. Thus FPL is projected to be less reliant on natural gas, and more reliant upon nuclear energy, by approximately 12% each.

These percentage changes in system fuel use for a system the size of FPL are significant. This can be demonstrated by looking at the projected amount of energy that will be supplied by the two new nuclear units in 2024. That value is approximately 17.7 million MWh. The forecasted annual energy use per residential customer in 2024 is 14,053 kwh. Therefore, the projected output from Turkey Point 6 & 7 in 2024 will serve the equivalent of the total annual electrical usage of approximately 1,259,000 residential customers in that year.

The improvement in system fuel diversity from Turkey Point 6 & 7 can also be demonstrated, for illustrative purposes, by looking at the amount of natural gas or oil that would have been needed to produce this same number of approximately 17.7 million MWh in 2024 if that energy had been produced by a conventional steam generating unit with a heat rate of 10,000 BTU/kwh. In such a case, Turkey Point 6 & 7 would save approximately 177,000,000 mmBTU of natural gas (if all of this energy had been produced by natural

gas), or approximately 27,600,000 barrels of oil (if all of this energy had been produced by oil), in 2024.

Finally, in regard to the reduction of system CO_2 emissions, Turkey Point 6 & 7 are projected to result in a cumulative reduction over the expected life of the two units of approximately 284 million tons of CO_2. This will be a significant reduction in CO_2 emissions, representing approximately 700% of the total CO_2 emissions from FPL-owned generating units in 2009. Stated another way, this projected cumulative CO_2 emission reduction from Turkey Point 6 & 7 is the equivalent of operating FPL's very large system of generating units for 7 years with zero CO_2 emissions.

Q. What conclusions do you draw from the results of the 2010 feasibility analyses of Turkey Point 6 & 7?

A. In regard to these economic feasibility analyses, the Turkey Point 6 & 7 project is clearly projected to be the economic choice in 13 of 14 scenarios examined. In the remaining scenario, a scenario that is comprised of a combination of Low Fuel Costs, low environmental compliance costs (Env I), and an 11.75% ROE, the projected breakeven costs are within, and at the upper end of, the non-binding range of capital costs.

Therefore, the results of the 2010 feasibility analyses show that Turkey Point 6 & 7 continues to be projected as cost-effective not only with updated load, fuel cost, etc. assumptions, but also with a change in the in-service dates.

In addition, the results of FPL's 2010 feasibility analyses show that FPL's customers are projected to significantly benefit from Turkey Point 6 & 7 in regard to system fuel savings, system fuel diversity, and system CO_2 emission reductions.

These results indicate that Turkey Point 6 & 7, with assumed 2022 and 2023 in-service dates, continue to be projected as solidly cost-effective and valuable capacity and energy additions for FPL's customers. These conclusions fully support the feasibility of continuing the Turkey Point 6 & 7 project.

Q. Does this conclude your testimony?

A. Yes.

Summary of Results from FPL's 2010 Feasiblity Analyses of the Nuclear Uprates and Turkey Point 6 & 7 Projects

(Plus Results from Additional Analyses)

	Nuclear Uprates Project	Turkey Point 6 & 7 Project
1) Number of fuel cost/environmental compliance cost scenarios in which the nuclear project is clearly cost-effective:		
- in the base case analyses	7 of 7	7 of 7
- in the sensitivity analyses	20 of 21	6 of 7 *
2) Projected Fuel Savings for FPL's Customers in First Full Year of Operation (Nominal $) * *	$146 million	$1,300 million (or $1.3 Billion)
3) Projected Fuel Savings for FPL's Customers Over the Life of the Project (Nominal $)	$6 Billion	$95 Billion
4) Projected Percentage of Total FPL Energy Produced from Natural Gas and Nuclear in First Full Year of Operation of Nuclear Project (approx. %):		
- without the Nuclear Project	63% Gas & 21% Nuclear	70% Gas & 20% Nuclear
- with the Nuclear Project	60% Gas & 24% Nuclear	58% Gas & 32% Nuclear
5) Equivalent Number of Residential Customers' Annual Energy Use Supplied by Nuclear Project in the First Year of the Project	229,000	1,259,000
6) Equivalent Annual Amount of Fossil Fuel Saved by the Nuclear Project Beginning in the First Year of Operation (approx.):		
- Equivalent mmBTU of Natural Gas	31 million	177 million
- Equivalent Barrels of Oil	5 million	28 million
7) Projected Amount of CO_2 Emissions Reduced by Nuclear Project Over the Life of the Project	33 million tons	284 million tons
8) Equivalent Number of Months at Which FPL's Generating System Would Operate with Zero CO_2 Emissions (approx.)	10	84 (or 7 years)

* The projected breakeven costs for Turkey Point 6 & 7 are above the non-binding cost estimate range in 6 of the 7 scenarios examined in the sensitivity analyses. In the remaining scenario, the projected breakeven cost was within, and at the upper end of, this cost range.

* * The first full year of operation for the Nuclear Uprates project is assumed to be 2013. (One of the four existing nuclear units in the project will be operational only 11 months of 2013.) The first full year of operation for the Turkey Point 6 & 7 project is assumed to be 2024.

Comparison of Key Assumptions Utilized in the 2009 and 2010 Economic Analyses of FPL Nuclear Projects: Projected Fuel Costs (Medium Fuel Cost Forecast)

(all $ values shown are in Nominal $)

	(1)	(2)	(3) = (2) - (1)
Selected Years	Forecasted Natural Gas Cost ($/mmBTU)		
	2009 Feasibility Analysis	2010 Feasibility Analysis	Change in 2010 Forecast
2010	$8.86	$5.92	($2.94)
2015	$9.70	$8.25	($1.45)
2020	$13.37	$11.08	($2.29)
2025	$14.74	$13.52	($1.22)
2030	$16.25	$15.32	($0.93)
2035	$17.92	$17.36	($0.56)
2040	$19.77	$19.68	($0.09)

	(1)	(2)	(3) = (2) - (1)
Selected Years	Forecasted 1% S Oil Cost ($/mmBTU)		
	2009 Feasibility Analysis	2010 Feasibility Analysis	Change in 2010 Forecast
2010	$9.31	$11.63	$2.32
2015	$14.16	$16.37	$2.21
2020	$17.92	$19.63	$1.71
2025	$20.03	$22.33	$2.30
2030	$22.38	$24.00	$1.62
2035	$25.03	$25.80	$0.77
2040	$27.98	$27.73	($0.25)

	(1)	(2)	(3) = (2) - (1)
Selected Years	Forecasted Nuclear Fuel Cost ($/mmBTU)		
	2009 Feasibility Analysis	2010 Feasibility Analysis *	Change in 2010 Forecast
2010	$0.78	$0.69	($0.09)
2015	$0.83	$0.79	($0.04)
2020	$1.05	$0.89	($0.16)
2025	$1.11	$1.07	($0.04)
2030	$1.26	$1.08	($0.18)
2035	$1.43	$1.23	($0.20)
2040	$1.61	$1.39	($0.23)

* As approved by the FPSC in FPL's recent base rate case, FPL is no longer leasing nuclear fuel. Because of this, the values shown above for nuclear fuel costs for 2010 do not reflect the lease costs that were included in the 2009 nuclear fuel cost values. There is now a net investment value (NIV) cost associated with nuclear fuel that is not included in the $/mmBTU forecast of nuclear fuel costs. This NIV cost is accounted for as a fixed annual cost in the CPVRR calculations.

Comparison of Key Assumptions Utilized in the 2009 and 2010 Economic Analyses of FPL Nuclear Projects:
Projected Environmental Compliance Costs: (Env II Forecast)
(all $ values shown are in Nominal $)

	(1)	(2)	(3) = (2) - (1)
	Forecasted SO_2 Compliance Cost ($/ton)		
Selected Years	2009 Feasibility Analysis	2010 Feasibility Analysis	Change in 2010 Forecast
2010	$1,277	$1,452	$175
2015	$2,013	$2,176	$163
2020	$3,164	$3,257	$93
2025	$4,988	$4,882	($106)
2030	$4,453	$5,319	$866
2035	$3,691	$4,293	$602
2040	$2,653	$3,278	$625

	(1)	(2)	(3) = (2) - (1)
	Forecasted NO_x Compliance Cost ($/ton)		
Selected Years	2009 Feasibility Analysis	2010 Feasibility Analysis	Change in 2010 Forecast
2010	$873	$1,381	$508
2015	$1,375	$2,071	$696
2020	$2,162	$3,100	$938
2025	$3,408	$1,257	($2,151)
2030	$1,545	$1,085	($460)
2035	$0	$1,228	$1,228
2040	$0	$1,389	$1,389

	(1)	(2)	(3) = (2) - (1)
	Forecasted CO_2 Compliance Cost ($/ton)		
Selected Years	2009 Feasibility Analysis	2010 Feasibility Analysis	Change in 2010 Forecast
2010	$0	$0	$0
2015	$17	$20	$3
2020	$27	$30	$3
2025	$43	$44	$1
2030	$67	$67	$0
2035	$101	$100	($1)
2040	$149	$149	$0

Comparison of Key Assumptions Utilized in the 2009 and 2010 Economic Analyses of FPL Nuclear Projects: Summer Peak Demand Load Forecast

(Summer MW)

	(1)	(2)	(3) = (2) - (1)
Selected Years	2009 Feasibility Analysis	2010 Feasibility Analysis	Change in 2010 Forecast
2010	21,147	21,922	775
2011	21,368	21,788	420
2012	21,933	22,139	206
2013	22,249	22,332	83
2014	23,533	23,575	42
2015	24,142	23,924	(218)
2016	24,772	24,344	(428)
2017	25,401	24,774	(627)
2018	26,143	25,328	(815)
2019	26,848	25,785	(1,063)
2020	27,715	26,348	(1,367)
2021	28,449	26,824	(1,625)
2022	29,109	27,191	(1,918)
2023	29,758	27,929	(1,829)
2024	30,339	28,533	(1,806)
2025	30,973	29,135	(1,838)
2030	33,931	31,691	(2,240)
2035	35,148	32,950	(2,198)
2040	37,622	35,557	(2,065)

Comparison of Key Assumptions Utilized in the 2009 and 2010 Economic Analyses of FPL Nuclear Projects: Other Assumptions

Assumption	(1) Value for 2009 Feasibility Analysis	(2) Value for 2010 Feasibility Analysis	(3) = (2) - (1) Change in 2010 Forecast
Assumptions for Feasibility Analyses of Both Projects:			
1) Number of Environmental Compliance Cost Scenarios	4	3	(1)
2) Financial/Economic Assumptions:			
- Capital Structure (debt/equity)	44.2%/55.8%	44.8%/55.2%	0.6%/(0.6)%
- Cost of Debt	7.30%	6.48%	(0.82%)
- Return on Equity	12.50%	10.00%	(2.50%)
- Discount Rate (after tax)	8.89%	7.30%	(1.59%)
3) CC Generator Capital ($/kw in 2018, w/o AFUDC)	$817	$883	$66
4) CC Heat Rate (Base 100%, BTU/kwh)	6,582	6,480	(102)
5) Firm Gas Transportation Cost ($/mmBTU in 2018)	$2.21	$2.08	($0.13)
Assumptions for Feasibility Analyses of Uprates: *			
6) Nuclear Uprates Incremental Capacity (MW)	399	450	51
7) Total Capital Cost of Uprates Assumed in Analyses ($ millions)	$1,724	$2,300	$576
8) Previously Spent Capital Costs Now Excluded (approx.$ millions)	$0	$347	$347
9) "Going Forward" Capital Costs Included in Analyses ($ millions)	$1,724	$1,953	$229
Assumptions for Feasibility Analyses of Turkey Point 6 & 7:			
10) Assumed In-Service Dates for Turkey Point Units 6 & 7	2018 & 2020	2022 & 2023	4 Years & 3 Years
11) Non-Binding Cost Estimate for New Nuclear Units ($/kw)	$3,108 to $4,540 in 2007$	$3,397 to $4,940 in 2010$	----
12) Previously Spent Capital Costs Now Excluded (approx. $ millions)	$0	$98	$98
13) Cumulative Annual Capital Expenditure Percentage for TP 6&7			
2010	2.0%	1.0%	(1.0) %
2011	5.9%	1.2%	(4.6) %
2012	13.7%	1.6%	(12.1) %
2013	24.7%	1.9%	(22.8) %
2014	37.7%	3.9%	(33.8) %
2015	54.2%	9.5%	(44.8) %
2016	72.1%	18.0%	(54.1) %
2017	84.6%	29.6%	(55.0) %
2018	95.5%	44.4%	(51.1) %
2019	98.5%	62.7%	(35.7) %
2020	100.0%	78.6%	(21.4) %
2021	100.0%	91.2%	(8.8) %
2022	100.0%	95.5%	(4.5) %
2023	100.0%	100.0%	0.0 %

* The nuclear uprates values shown reflect FPL's share of incremental MW and costs.

The Two Resource Plans Utilized in the 2010 Feasibility Analyses of the Nuclear Uprates

Resource Plan with Nuclear Uprates	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024 - 2040
- unit(s)/capacity added	WCEC 3 CC added	Nuclear Uprate (3 units) *	Cape Canaveral Modernization; Nuclear Uprate (1 unit)*	Riviera Modernization	---	---	---	---	---	---	---	Turkey Point 6	Turkey Point 7	11,514 MW of CC Filler Unit Capacity
- Projected Summer Reserve Margin	25.4%	25.4%	32.0%	31.1%	30.0%	22.2%	20.6%	20.1%	20.0%	19.9%	19.9%	22.7%	23.5%	(meets criterion in all yrs)

Resource Plan without Nuclear Uprates	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024 - 2040
- unit(s)/capacity added	WCEC 3 CC added	(none)	Cape Canaveral Modernization	Riviera Modernization	---	---	---	---	---	---	Greenfield 3x1 CC (1,212 MW)	Turkey Point 6	Turkey Point 7	10,302 MW of CC Filler Unit Capacity
- Projected Summer Reserve Margin	25.4%	23.7%	29.7%	28.9%	27.8%	20.1%	20.4%	19.8%	19.8%	20.1%	23.1%	25.9%	26.6%	(meets criterion in all yrs)

Notes:

- Assumes FPL's DSM goals for 2010 - 2019.
- Assumes no peak load or annual energy growth after 2040.
- FPL's reserve margin criterion is 20%.
- The reserve margin values include the temporary placement of a number of FPL's existing generating units on InActive Reserve status and their return to active service. (However, these actions are not specifically listed in the "unit(s)/capacity added" row.

* One of the four nuclear uprates is scheduled to occur in Dec 2011, one in May 2012, one in July 2012, and one in Jan 2013. Because the 2011 uprate will occur after the Summer of 2011, for reserve margin calculation purposes the first three uprates are accounted for starting with the 2012 Summer reserve margin calculation. The fourth uprate is accounted for starting with the 2013 Summer reserve margin calculation.

2010 Feasibility Analyses Results for the Nuclear Uprates:

Total Costs and Total Cost Differentials for All Fuel and Environmental Compliance Cost Scenarios in 2010$ (millions, CPVRR, 2010 - 2043)

(1)	(2)	(3)	(4)	(5) = (3) - (4)
Fuel Cost Forecast	Environmental Compliance Cost Forecast	Total Costs for Plans (2010$)		Total Cost Difference Plan with Nuclear Uprates minus Plan without Nuclear Uprates (2010$)
		Plan with Nuclear Uprates	Plan without Nuclear Uprates	
High Fuel Cost	Env I	158,583	160,057	(1,474)
High Fuel Cost	Env II	166,447	168,107	(1,660)
High Fuel Cost	Env III	184,024	186,080	(2,055)
Medium Fuel Cost	Env I	137,716	138,659	(942)
Medium Fuel Cost	Env II	145,587	146,716	(1,129)
Medium Fuel Cost	Env III	162,882	164,406	(1,524)
Low Fuel Cost	Env I	116,890	117,308	(417)

Note: A negative value in Column (5) indicates that the Plan with Nuclear Uprates is less expensive than the Plan without Nuclear Uprates. Conversely, a positive value in Column (5) indicates that the Plan with Nuclear Uprates is more expensive than the Plan without Nuclear Uprates.

2010 Feasibility Analyses Results for the Nuclear Uprates:

Total Costs and Total Cost Differentials for All Fuel and Environmental Compliance Cost Scenarios in 2010$ (millions, CPVRR, 2010 - 2043)

Sensitivity Analyses Assuming 11.75% ROE

(1)	(2)	(3)	(4)	(5) = (3) - (4)
Fuel Cost Forecast	Environmental Compliance Cost Forecast	Total Costs for Plans (2010$)		Total Cost Difference Plan with Nuclear Uprates minus Plan without Nuclear Uprates (2010$)
		Plan with Nuclear Uprates	Plan without Nuclear Uprates	
High Fuel Cost	Env I	138,471	139,549	(1,079)
High Fuel Cost	Env II	145,152	146,396	(1,244)
High Fuel Cost	Env III	160,085	161,680	(1,595)
Medium Fuel Cost	Env I	120,164	120,769	(604)
Medium Fuel Cost	Env II	126,854	127,625	(771)
Medium Fuel Cost	Env III	141,559	142,680	(1,121)
Low Fuel Cost	Env I	101,898	102,035	(137)

Note: A negative value in Column (5) indicates that the Plan with Nuclear Uprates is less expensive than the Plan without Nuclear Uprates. Conversely, a positive value in Column (5) indicates that the Plan with Nuclear Uprates is more expensive than the Plan without Nuclear Uprates.

The Two Resource Plans Utilized in the 2010 Feasibility Analyses of Turkey Point 6 & 7

Resource Plan with TP 6&7	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024 - 2040
- unit(s)/capacity added	WCEC 3 CC added	Nuclear Uprate (3 units) *	Cape Canaveral Modernization; Nuclear Uprate (1 unit)*	Riviera Modernization	---	---	---	---	---	---	---	Turkey Point 6	Turkey Point 7	11,514 MW of CC Filler Unit Capacity
- Projected Summer Reserve Margin	25.4%	25.4%	32.0%	31.1%	30.0%	22.2%	20.6%	20.1%	20.0%	19.9%	19.9%	22.7%	23.5%	(meets criterion in all yrs)

Resource Plan without TP 6&7	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024 - 2040
- unit(s)/capacity added	WCEC 3 CC added	Nuclear Uprate (3 units) *	Cape Canaveral Modernization; Nuclear Uprate (1 unit)*	Riviera Modernization	---	---	---	---	---	---	---	Greenfield 3x1 CC (1,212 MW)	Greenfield 3x1 CC (1,212 MW)	11,514 MW of CC Filler Unit Capacity
- Projected Summer Reserve Margin	25.4%	25.4%	32.0%	31.1%	30.0%	22.2%	20.6%	20.1%	20.0%	19.9%	19.9%	23.1%	24.4%	(meets criterion in all yrs)

Notes:
- Assumes FPL's DSM goals for 2010 - 2019.
- Assumes no peak load or annual energy growth after 2040.
- FPL's reserve margin criterion is 20%.
- The reserve margin values include the temporary placement of a number of FPL's existing generating units on InActive Reserve status and their return to active service. (However, these actions are not specifically listed in the "unit(s)/capacity added" row.

* One of the four nuclear uprates is scheduled to occur in Dec 2011, one in May 2012, one in July 2012, and one in Jan 2013. Because the 2011 uprate will occur after the Summer of 2011, for reserve margin calculation purposes the first three uprates are accounted for starting with the 2012 Summer reserve margin calculation. The fourth uprate is accounted for starting with the 2013 Summer reserve margin calculation.

2010 Feasibility Analyses Results for Turkey Point 6 & 7:

Total Costs, Total Cost Differentials, and Breakeven Costs for All Fuel and Environmental Compliance Cost Scenarios in 2010$ (millions, CPVRR, 2010 - 2063)

(1)	(2)	(3)	(4)	(5) = (3) - (4)	(6)
Fuel Cost Forecast	Environmental Compliance Cost Forecast	Total Costs for Plans (2010$)		Total Cost Difference Plan with TP 6 & 7 minus Plan without TP 6 & 7 (2010$)	Breakeven Nuclear Capital Costs ($/kw in 2010$)
		Plan with TP 6 & 7	Plan without TP 6 & 7		
High Fuel Cost	Env I	204,049	220,743	(16,694)	7,637
High Fuel Cost	Env II	215,460	233,199	(17,740)	8,116
High Fuel Cost	Env III	240,986	261,237	(20,251)	9,267
Medium Fuel Cost	Env I	177,852	192,116	(14,265)	6,524
Medium Fuel Cost	Env II	189,240	204,550	(15,310)	7,003
Medium Fuel Cost	Env III	214,289	232,117	(17,828)	8,156
Low Fuel Cost	Env I	151,671	163,510	(11,839)	5,413

Note: A negative value in Column (5) indicates that the Plan with TP 6 & 7 is less expensive than the Plan without TP 6 & 7. Conversely, a positive value in Column (5) indicates that the Plan with TP 6 & 7 is more expensive that the Plan without TP 6 & 7.

2010 Feasibility Analyses Results for Turkey Point 6 & 7:

Total Costs, Total Cost Differentials, and Breakeven Costs for All Fuel and Environmental Compliance Cost Scenarios in 2010$ (millions, CPVRR, 2010 - 2063)

Sensitivity Analyses Assuming 11.75% ROE

(1)	(2)	(3)	(4)	(5) = (3) - (4)	(6)
Fuel Cost Forecast	Environmental Compliance Cost Forecast	Total Costs for Plans (2010$)		Total Cost Difference Plan with TP 6 & 7 minus Plan without TP 6 & 7 (2010$)	Breakeven Nuclear Capital Costs ($/kw in 2010$)
		Plan with TP 6 & 7	Plan without TP 6 & 7		
High Fuel Cost	Env I	169,796	183,093	(13,296)	6,697
High Fuel Cost	Env II	178,913	193,011	(14,098)	7,102
High Fuel Cost	Env III	199,304	215,330	(16,026)	8,075
Medium Fuel Cost	Env I	147,829	159,210	(11,381)	5,730
Medium Fuel Cost	Env II	156,934	169,118	(12,183)	6,135
Medium Fuel Cost	Env III	176,964	191,080	(14,116)	7,111
Low Fuel Cost	Env I	125,886	135,355	(9,468)	4,764

Note: A negative value in Column (5) indicates that the Plan with TP 6 & 7 is less expensive than the Plan without TP 6 & 7. Conversely, a positive value in Column (5) indicates that the Plan with TP 6 & 7 is more expensive that the Plan without TP 6 & 7.