BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

DOCKET NO. 140009-EI
FLORIDA POWER & LIGHT COMPANY

MAY 1, 2014

IN RE: NUCLEAR POWER PLANT COST RECOVERY FOR THE YEAR ENDING DECEMBER 2015

TESTIMONY & EXHIBITS OF:

STEVEN R. SIM

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

FLORIDA POWER & LIGHT COMPANY

DIRECT TESTIMONY OF STEVEN R. SIM

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May 1, 2014

Q. Please state your name and business addresses.

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 energy 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 included the development, monitoring, and cost-effectiveness analyses 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. What is the purpose of your testimony?

A. The primary purpose of my testimony is to present the results of the 2014 economic analyses for the new FPL nuclear units, Turkey Point 6 & 7. Non-economic analyses of Turkey Point 6 & 7 were also performed. In my testimony I will refer to these analyses collectively as the 2014 feasibility analyses for the Turkey Point 6 & 7 project. The results of these analyses were that the Turkey Point 6 & 7 project is projected to be the clear economic choice in at least half of these scenarios and that FPL's customers will also

benefit greatly from non-economic aspects of the project such as enhanced fuel diversity and lower system emissions.

In addition, I will briefly discuss FPL's portfolio approach in resource planning and the role of additional nuclear energy in that portfolio approach. I will also discuss the assumptions used in the 2014 feasibility analyses. I will also present the results of additional analyses that further quantify the projected benefits of the Turkey Point 6 & 7 project.

The 2014 feasibility analyses of the Turkey Point 6 & 7 project are presented to satisfy the requirement of Subsection 6(c)5 of the Florida Administrative Code Rule 25-6.0423, Nuclear Power Plant Cost Recovery, which states *"Along with the filings required by this paragraph, each year a utility shall submit for Commission review and approval a detailed analysis of the long-term feasibility of completing the power plant."* Other feasibility-related topics for the Turkey Point 6 & 7 project are discussed by FPL Witness Scroggs.

Q. Please summarize your testimony.

A. In 2014, FPL performed new feasibility analyses using updated assumptions and forecasts. These analyses utilized 3 fuel cost forecasts, 3 environmental cost forecasts, and two operating life assumptions. In total, 14 scenarios were analyzed. The results of FPL's 2014 feasibility analyses indicate that completing the project is projected to be clearly economic for FPL's

customers in 7 of these 14 scenarios which showed that the projected breakeven capital costs for the two new nuclear units were above the high end of FPL's non-binding capital cost estimate. In the remaining 7 scenarios, the breakeven capital costs fell within the range of these non-binding capital cost estimates in 6 of these scenarios. The Turkey Point 6 & 7 units were projected to be non-economic (but nonetheless beneficial in terms of fuel diversification and emission reductions) in only one scenario. This single scenario assumed low natural gas costs for each year through the year 2063, low environmental compliance costs for each year through the year 2063, and also assumed the lower of the two operating life assumptions.

The results of the 2014 feasibility analyses are summarized in Exhibit SRS-1. This exhibit presents a number of results from FPL's 2014 analyses of the Turkey Point 6 & 7 project including, but not limited to: (i) the number of future fuel cost, environmental cost, and operating life scenarios in which the project is projected to be clearly economic; (ii) projected fuel savings for FPL's customers; (iii) reduced reliance upon fossil fuels (i.e., fuel diversity); and (iv) projected carbon dioxide (CO_2) reductions. These results, and results of other analyses and calculations, are discussed later in my testimony.

These results, whether examined individually or as a whole, present a strong case for continuing the Turkey Point 6 & 7 project. For example, based on the Medium Fuel Cost forecast, customers are projected to save at least $64

billion (nominal) in fuel costs over the life of Turkey Point 6 & 7. Additionally, the project will produce energy that otherwise would have required the consumption of substantial amounts of natural gas or millions of barrels of oil annually, and will reduce system CO_2 emissions by millions of tons. In short, completing Turkey Point 6 & 7 continues to be projected as a valuable resource addition for FPL's customers as part of FPL's portfolio approach to resource planning.

Q. Would you please briefly explain what you mean by FPL's portfolio approach to resource planning and what part additional nuclear capacity such as Turkey Point 6 & 7 plays in that portfolio approach?

A. Yes. As with all economic analyses, FPL's 2014 economic analyses of the Turkey Point 6 & 7 project provides a "snapshot" of the projected customer benefits associated with Turkey Point 6 & 7 based on current project assumptions, forecasts of numerous costs, and resource planning assumptions. The 2014 feasibility analyses examine potential future scenarios that result from combining various fossil fuel price forecasts, environmental compliance cost forecasts, and operating lives. Of course, the actual economic performance of FPL's system, including the impacts of future fuel prices, etc., cannot be known until after the fact. That is why FPL examines the projected impacts of resource additions such as new nuclear capacity over a wide range of potential future scenarios.

The inability to be able to predict with confidence future fuel and environmental compliance costs is a key reason why FPL not only performs these analyses based on multiple forecasts and scenarios, but also why FPL strives for diversity in regard to system resources and fuels in what I will refer to as a portfolio approach to resource planning. Because the price of nuclear fuel is unrelated to fossil fuel prices, and because nuclear power plants produce no emissions such as sulfur dioxide (SO_2), nitrogen oxides (NO_x), or carbon dioxide (CO_2) in the process of generating electricity, additional nuclear capacity is a superb hedge against fossil fuel price volatility and increases in environmental compliance costs. Diversification also improves system reliability.

The Turkey Point 6 & 7 nuclear project will help reduce FPL's reliance on natural gas. In addition, the Turkey Point 6 & 7 nuclear project will also help further reduce the usage of oil, including foreign oil, by FPL's system. Through diversification generally, and the addition of Turkey Point 6 & 7, FPL is working to keep its electric rates, and thus the resulting bills for its customers, low over the long term while also providing highly reliable electric service.

The current low cost of natural gas is a great thing for FPL's customers because it allows FPL to produce electricity with relatively low fuel costs. The current forecasted low cost of natural gas is also a primary reason that

highly efficient gas-fired combined cycle (CC) units have been determined to be the most economic type of fossil fueled generation resource for FPL's system when FPL has needed to add new generation resources. As a result of these factors, FPL has been increasing its use of natural gas to benefit its customers and now supplies approximately 2/3 of all of the electricity it provides to customers by burning natural gas.

However, this increased use of natural gas also represents a growing reliance on natural gas. In turn, this growing reliance on natural gas results in increased risk in regard to potential future changes in natural gas cost and availability.

Consequently, FPL's resource planning takes a balanced portfolio approach to maximize the benefits to customers of using currently low cost natural gas while also taking steps to minimize the risks inherent in having a high reliance on natural gas. Among the steps being taken to minimize this risk are: (i) selecting high-efficiency CC generating units, which burn natural gas as efficiently as possible, when FPL's resource needs dictate that new generating units should be added; (ii) enhancing the availability of natural gas by pursuing a third natural gas pipeline into Florida (which may also put downward pressure on delivered natural gas prices); (iii) maintaining the ability to continue to burn fuel oil in existing steam generating units by installing electrostatic precipitators at these units; (iv) diversifying FPL's fuel

mix by pursuing additional renewable energy; and (v) significantly diversifying FPL's fuel mix by adding additional nuclear capacity through the successfully completed Extended Power Uprate (EPU) project and the Turkey Point 6 & 7 project.

Additional nuclear capacity is an important aspect of this balanced portfolio approach because it is the only resource option available that can provide baseload, firm capacity at even lower fuel costs than natural gas and which does so using no fossil fuels and producing zero air emissions. In regard to the latter two points - no fossil fuel use and producing zero air emissions - nuclear capacity serves as an excellent hedge against increasing natural gas costs and increasing environmental compliance costs as previously mentioned. These hedge aspects of nuclear capacity are especially valuable attributes in a balanced portfolio approach to serving FPL's customers both today and in the future.

Q. Are you sponsoring any exhibits in this case?

A. Yes. I am sponsoring the following 10 exhibits:

- Exhibit SRS-1: Summary of Results from FPL's 2014 Feasibility Analyses of the Turkey Point 6 & 7 Project (Plus Results from Additional Analyses);
- Exhibit SRS-2: Comparison of Key Assumptions Utilized in the 2013 and 2014 Feasibility Analyses of the Turkey Point 6 & 7 Project: Projected Fuel Costs (Medium Fuel Cost Forecast);

- Exhibit SRS-3: Comparison of Key Assumptions Utilized in the 2013 and 2014 Feasibility Analyses of the Turkey Point 6 & 7 Project: Projected Environmental Compliance Costs (Env II Forecast);
- Exhibit SRS-4: Comparison of Key Assumptions Utilized in the 2013 and 2014 Feasibility Analyses of the Turkey Point 6 & 7 Project: 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 2013 and 2014 Feasibility Analyses of the Turkey Point 6 & 7 Project: Other Assumptions;
- Exhibit SRS-7: The Two Resource Plans Utilized in FPL's 2014 Feasibility Analyses of the Turkey Point 6 & 7 Project;
- Exhibit SRS-8: 2014 Feasibility Analyses Results for the Turkey Point 6 & 7 Project: Case # 1 Analysis – 40-Year Operating Life; Total Costs, Total Cost Differentials, and Breakeven Costs for All Fuel and Environmental Compliance Cost Scenarios in 2014$ (millions, CPVRR, 2014-2063);
- Exhibit SRS-9: 2014 Feasibility Analyses Results for the Turkey Point 6 & 7 Project: Case # 2 Analysis – 60-Year Operating Life; Total Costs, Total Cost Differentials, and Breakeven Costs for All Fuel and Environmental Compliance Cost Scenarios in 2014$ (millions, CPVRR, 2014-2083); and,

- Exhibit SRS-10: A Look at Projected Hedge Benefits from Turkey Point 6 & 7.

I. 2014 Feasibility Analyses – Analytical Approach

Q. Please provide an overview of the basic analytical approach used for evaluating the Turkey Point 6 & 7 project.

A. The basic analytical approach in the feasibility analyses of Turkey Point 6 & 7 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 are developed for various scenarios of fuel cost/environmental compliance costs 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 costs, plus other fixed and variable 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 includes the Turkey Point 6 & 7 units. The other resource plan includes instead an alternate resource option that competes with these two nuclear units. The competing alternate resource option is new highly fuel-efficient CC generating capacity consistent with the CC capacity that has recently been installed at FPL's Cape Canaveral and Riviera Beach sites, and which is currently being installed at FPL's Port Everglades site, through FPL's modernization projects at these 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 economic impacts of the resource options being evaluated. FPL's 2014 feasibility analyses address these economic impacts. In addition, my testimony provides a discussion of three non-economic impacts to the FPL system: system fuel savings, increased system fuel diversity, and system emission reductions, which will result from the Turkey Point 6 & 7 project.

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

A. Yes. The FPSC first provided guidance in its affirmative determination of need order for Turkey Point 6 & 7 (Order No. PSC-08-0237-FOF-EI, page 29), when it stated:

> *"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."

In the FPSC's 2009 Nuclear Cost Recovery (NCR) order (Order No. PSC-09-0783-FOF-EI, page 14), the FPSC quoted its need determination order and reiterated that these elements are necessary to satisfy the NCR Rule.

This guidance from the FPSC clearly distinguishes "sunk costs" from "updated capital cost estimates" in regard to feasibility analyses of nuclear projects. Consequently, FPL has effectively removed sunk costs in its calculation of breakeven costs for the feasibility analyses of Turkey Point 6 & 7. FPL's approach to sunk costs complies with the above mentioned Rule, which directs FPL to evaluate "completing" the project. FPL's approach to sunk costs also follows the guidance provided by the FPSC, and was expressly approved for the Turkey Point 6 & 7 analyses by the FPSC in its 2011 NCR order (Order No. PSC-11-0547-FOF-EI, pages 17-18 and 38).

Q. Was the analytical approach used in FPL's 2014 feasibility analyses of Turkey Point 6 & 7 similar to the approach used in the Determination of Need filings for this project, and in the feasibility analyses of this project that were presented in previous NCR filings?

A. Yes. The analytical approach that was used in the 2014 feasibility analyses for the Turkey Point 6 & 7 project is very similar to the approach used in the 2007 Determination of Need filing and in the feasibility analyses presented in the 2008 through 2013 NCR filings.

Q. Please describe the economic perspective used in the analytical approach for the Turkey Point 6 & 7 project.

A. This perspective is the calculation of breakeven overnight capital costs, in terms of both cumulative present value of revenue requirements (CPVRR) and overnight construction costs in $/kW, for the new nuclear units. This same perspective was utilized in the 2007 Determination of Need filing, and in the 2008 through 2013 NCR 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 perspective may emerge as more appropriate.

II. 2014 Feasibility Analyses – Updated Assumptions

Q. Do FPL's 2014 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. FPL updated these assumptions in late 2013/early

2014 and is using them in its 2014 resource planning work including the nuclear analyses presented in this docket.

Five informational items were listed in Order No. PSC-08-0237 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 compliance cost forecasts;
3) breakeven costs;
4) capital cost estimates; and,
5) sunk costs.

FPL's 2014 feasibility analyses for the Turkey Point 6 & 7 project utilized FPL's current assumptions for four of these five items and calculated the current projected value for the fifth item. FPL's 2014 feasibility analyses for the Turkey Point 6 & 7 project included current assumptions for the following four items: items 1), 2), 4), and 5). The remaining item, item 3) breakeven costs, is a result of the analyses (as opposed to an assumption). The results of FPL's 2014 feasibility analyses present updated breakeven costs for the Turkey Point 6 & 7 project in terms of CPVRR costs and in terms of overnight construction costs in $/kW.

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

A. Yes. FPL also updated a number of other assumptions in late 2013/early 2014 in preparation for all of its 2014 resource planning work. Consequently, these other updated assumptions are also included in FPL's 2014 feasibility analyses of the Turkey Point 6 & 7 project. A partial listing of these other assumptions include: FPL's load forecast and cost and performance assumptions for new CC capacity.

Q. Please discuss any changes in the forecasted values for fuel costs and environmental compliance costs between the forecasts utilized in the 2014 feasibility analyses and those that were used in the 2013 feasibility analyses.

A. Exhibits SRS-2 and SRS-3 provide these comparisons. Exhibit SRS-2 provides 2013 and 2014 forecasted Medium Fuel Cost values for selected years for natural gas, oil, and nuclear fuel costs. As shown in this exhibit, the 2014 Medium Fuel Cost forecasts for natural gas and for 1% sulfur oil are lower than the respective 2013 forecasts throughout all years. In regard to forecasted nuclear fuel costs, the 2014 forecasted prices are unchanged from the 2013 forecasted prices.

Exhibit SRS-3 presents similar 2013 and 2014 comparative information for forecasted Env II (i.e., mid-level) environmental compliance costs for three types of air emissions: SO_2, NO_x, and CO_2. As shown in the exhibit, there has been no change in projected environmental compliance costs for these three types of air emissions from what was assumed in FPL's 2013 feasibility

analyses. The decision not to change these projected compliance costs was based on FPL's view that nothing definitive had occurred on either the legislative or regulatory fronts since the 2013 NCR docket hearing that would require a change in these cost projections. As in FPL's 2012 and 2013 analyses, these projected environmental compliance costs are lower than the projected costs used in FPL's nuclear analyses from 2007 through 2011.

Q. Are any of the fuel cost forecasts or environmental compliance cost forecasts considered the "most likely" forecast?

A. FPL does not consider any fuel cost forecast or environmental cost forecast as the "most likely" cost forecast. FPL's scenario approach is designed to provide a range of possible future fuel and environmental compliance costs.

Q. Please discuss FPL's 2014 load forecast and how it compares to FPL's 2013 load forecast.

A. Exhibit SRS-4 presents the 2013 and 2014 Summer peak load forecasts. As shown in Column (3) of this exhibit, the 2014 forecast of Summer peak load is generally lower than the 2013 forecast.

In addition, Exhibit SRS-4 also provides a projection of the annual and cumulative growth in Summer peak loads associated with the 2014 peak load forecast. As shown in column (5) of this exhibit, FPL projects a cumulative growth in Summer peak load of approximately 3,139 MW by 2022 which increases to 5,109 MW by the year 2025.

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 implements DSM at the level which FPL has proposed as its new DSM Goals for the years 2015 through 2024 in Docket No. 130199–EI. This exhibit shows that, without the incremental capacity from Turkey Point 6 & 7 and with no other generating additions from 2022-on, FPL has a need for new resources starting in 2022 and this need increases every year thereafter. The projected resource need in 2022 is 476 MW of new generating capacity and this projected resource need increases to 2,930 MW by 2025. In addition, as shown in Column (11) of this exhibit, FPL's minimum 10% generation-only reserve margin criterion would also not be met for each year beginning in the year 2022 assuming that neither Turkey Point 6 & 7, nor any other generating addition, was made beginning in the year 2022.

Q. What other assumptions changed from the 2013 analyses to the 2014 analyses?

A. Exhibit SRS-6 presents the 2013 and 2014 projections for 10 other assumptions that were utilized in the feasibility analyses of the Turkey Point 6 & 7 project.

Q. Please discuss the first five assumptions.

A. These five assumptions are:

1) the number of environmental compliance cost scenarios;

2) financial/economic assumptions;

3) the projected capital cost of competing CC capacity;

4) the projected 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 2013 feasibility analyses, FPL is again using three scenarios in its 2014 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 2014 feasibility analyses have changed only in regard to the cost of debt and the discount rate from those used in the 2013 feasibility analyses. The financial/economic assumptions include the following: return on equity (ROE) is 10.5%, the allowed cost of debt is 5.14%, the debt-to-equity ratio is 40.38%/59.62%, and the associated discount rate is 7.54%.

The remaining three assumptions involve the costs of the competing new CC capacity used in the feasibility analyses. FPL's current projected (generator only) capital cost of CC capacity is $883/kW in 2022$. The current projected heat rate of this CC capacity, 6,334 BTU/kWh, is unchanged. The projected

firm gas transportation cost has changed. Using the projected firm gas transportation cost for the year 2023 as an example, the value has decreased from $2.23/mmBTU to $1.20/mmBTU.

Q. Please discuss the remaining five assumptions.

A. These five assumptions are:

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

7) assumed operating lives of Turkey Point 6 & 7;

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

9) previously spent capital costs that are excluded from the 2014 feasibility analyses; and,

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

The first of these five assumptions, the in-service dates of Turkey Point 6 & 7 utilized in the 2014 feasibility analyses are unchanged: 2022 & 2023. FPL Witness Scroggs' direct testimony addresses the in-service dates for Turkey Point 6 & 7.

The second of these assumptions is the assumed operating lives of the two new nuclear units. In its 2014 feasibility analyses, FPL is using two operating life assumptions: a 40-year operating life and a 60-year operating life. The assumption of a 40-year operating life is consistent with the operating life

assumption used in prior feasibility analyses. FPL believes this is an increasingly conservative assumption.

Two of FPL's four existing nuclear units, Turkey Point 3 & 4, have now been operating for more than 40 years. Furthermore, all four of FPL's nuclear units have received a license extension from the Nuclear Regulatory Commission (NRC) enabling each unit to operate for a total of 60 years. In addition, FPL's parent company, NextEra Energy (NEE), owns and operates two other nuclear units, Point Beach 1 & 2, that have operated for more than 40 years. These two nuclear units, plus a third nuclear unit owned and operated by NEE (Duane Arnold), have also been granted a license extension from the NRC enabling each unit to operate for a total of 60 years. Therefore, FPL believes that a 40-year operating life assumption for Turkey Point 6 & 7 is conservative and is, therefore, also using an assumption of a 60-year operating life in the feasibility analyses.

The third of these assumptions is the non-binding cost estimate for constructing Turkey Point 6 & 7. The range of costs used in the 2014 feasibility analyses is $3,750/kW to $5,453/kW in 2014$. This reflects an updating of the projected cost range. FPL Witness Scroggs' direct testimony also discusses the updating of this assumption.

The fourth of these assumptions is the previously spent capital costs that are excluded in the 2014 feasibility analysis. In order to account for "sunk" capital costs for the Turkey Point 6 & 7 project, FPL is excluding approximately $228 million of sunk costs that have already been spent through December 31, 2013. This represents an increase of approximately $36 million compared to the approximately $192 million sunk cost value utilized in FPL's 2013 feasibility analyses. FPL Witness Grant-Keene provides the sunk cost value of the Turkey Point 6 & 7 project in her direct testimony.

The fifth assumption is the cumulative annual capital expenditure percentages for the construction of Turkey Point 6 & 7. The annual expenditure percentage values used in the 2014 feasibility analyses are largely unchanged from the values used in the 2013 feasibility analyses.

Q. It is clear that a number of changes in assumptions were made between those used in the 2013 feasibility analyses and those used in the 2014 feasibility analyses. Were all of these assumption changes favorable to the projected economics of the Turkey Point 6 & 7 project?

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 Turkey Point 6 & 7 project in regard to the changes in assumptions from those used in the 2013 feasibility analyses to those used in the 2014 feasibility analyses. For the Turkey Point 6 & 7 project, some updated assumptions, such as the lower natural gas cost forecasts, are unfavorable for the project (although favorable overall for FPL's customers).

All of FPL's updated assumptions, whether favorable or unfavorable for the Turkey Point 6 & 7 project, were included in FPL's 2014 feasibility analyses of the project.

Q. If the assumed 2022 and 2023 in-service dates are impacted by a longer than anticipated licensing phase, does the use of these in-service dates still allow a meaningful feasibility analysis of Turkey Point 6 & 7?

A. Yes. The feasibility analysis compares the relative economics of new nuclear capacity versus the best non-nuclear generation alternative (gas-fired CC generation). As long as a consistent set of assumptions, including in-service dates, is used to compare the competing resource options, the feasibility analysis will provide meaningful results.

Furthermore, the use of 2022 and 2023 in-service dates results in a conservative projection of the economics of Turkey Point 6 & 7 in regard to forecasted fuel commodity costs that would be saved by the two nuclear units

in comparison to later in-service dates. For example, the forecasted Medium Fuel Cost of natural gas in the year 2022 is $6.62/mmBTU. The projected fuel cost savings from the first year of operation of the first of the two new nuclear units, Turkey Point 6, for any scenario in the feasibility analysis using the Medium Fuel Cost forecast is based on this forecasted gas cost. If the in-service date for Turkey Point 6 is later than 2022, the projected fuel cost savings from the first year of operation of Turkey Point 6 would be based on a higher gas cost than $6.62/mmBTU. For example, the forecasted Medium Fuel Cost for natural gas is $6.93/mmBTU for 2023, $7.34/mmBTU for 2024, and the forecasted cost will be higher in each subsequent year. Thus the projected fuel cost savings for the first year of operation, and for each subsequent year of operation, of the new nuclear capacity would be considerably increased if the in-service dates for Turkey Point 6 & 7 were assumed to be later than that assumed in the feasibility analyses.

III. Analysis of the Turkey Point 6 & 7 Project

Q. What resource plans were used to perform the 2014 feasibility analyses of Turkey Point 6 & 7?

A. The resource plans that were utilized in the 2014 feasibility analyses of Turkey Point 6 & 7 are presented in Exhibit SRS-7. One resource plan with Turkey Point 6 & 7 and another resource plan without Turkey Point 6 & 7 are presented in this exhibit. As shown in this exhibit, the two resource plans are

identical through the year 2021. The resource plans differ starting in 2022. The Resource Plan with Turkey Point 6 & 7 adds the two 1,100 MW nuclear units, one in 2022 and one in 2023. The Resource Plan without Turkey Point 6 & 7 adds two 1,269 MW CC units, one in 2022 and one in 2024. Both resource plans then add the necessary amount of capacity through the rest of the analysis periods. The timing of these later capacity additions varies between the two resource plans.

Q. What were the results of the 2014 feasibility analyses for Turkey Point 6 & 7?

A. The results of the 2014 feasibility analyses for Turkey Point 6 & 7 are presented in Exhibits SRS-8 and SRS-9. Exhibit SRS-8 presents the results for Case # 1 that assumes a 40-year operating life. Exhibit SRS-9 presents the results for Case # 2 that assumes a 60-year operating life. In both of these two cases, all 7 scenarios of fuel cost forecasts and environmental compliance cost forecasts are analyzed.

The calculated breakeven nuclear capital costs in overnight construction costs in terms of $/kW in 2014$ are presented in Column (6) of these exhibits. The results in Column (6), when compared to FPL's non-binding estimated range of capital costs in 2014$ of $3,750/kW to $5,453/kW, show that the projected breakeven capital costs for Turkey Point 6 & 7 are above this range in 2 of 7 scenarios in Exhibit SRS-8 (Case # 1) and in 5 of 7 in Exhibit SRS-9 (Case #

2). Thus Turkey Point 6 & 7 is projected to clearly be the economic choice in 7, or half, of the 14 scenarios.

These exhibits also show that of the remaining 7 scenarios, the results for 6 of these scenarios are that the projected breakeven costs for Turkey Point 6 & 7 are within the non-binding capital cost estimate range. In the single scenario in which the projected breakeven capital costs for Turkey Point 6 & 7 are below the range of non-binding capital cost estimates, the combination of assumptions included in this scenario are: (i) low natural gas costs each year through the year 2063; (ii) low environmental compliance costs each year through the year 2063; and (iii) the lower of the two operating life assumptions (40 years).

Also, as evidenced by the CPVRR values for this single scenario, compared to the CPVRR values for all other scenarios, FPL's customers would still benefit greatly if these assumed low costs for natural gas and/or environmental compliance were to materialize. For example, using the projected CPVRR costs for the Resource Plan with Turkey Point 6 & 7, the projected CPVRR costs under the Case # 1 Medium Fuel Cost/Env II scenario are $142,065 million, but are projected to be significantly lower, $116,223 million, under the Low Fuel Cost/Env I scenario. Therefore, although the economics for the Turkey Point 6 & 7 project are diminished under a scenario of lower fuel and environmental compliance costs (i.e., Low Fuel Cost/Env I), FPL's customers

are still projected to benefit significantly under such a scenario by $25,843 million CPVRR.

Q. In addition to the results of these economic analyses, did FPL's 2014 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 that will be discussed in the remainder of my testimony will use the results from the 2014 feasibility analyses for the Case # 1: Medium Fuel Cost, Env II scenario. Comparable results also occur using the same fuel cost and environmental compliance cost forecast scenario in the Case # 2 analyses.

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 Exhibit SRS-8, 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, 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 $644 million (nominal) in fuel costs for that year.

Q. What are the projected fuel savings over the operating life of the Turkey Point 6 & 7 units and how do those projections compare with FPL's current total system annual fuel cost?

A. The total fuel savings for FPL's customers is projected to be approximately $64 billion (nominal). FPL's 2013 annual total system fuel cost was approximately $3.1 billion. Therefore, the projected fuel savings over the life of the Turkey Point 6 & 7 units is equivalent to serving FPL's more than 4.6 million customer accounts (representing approximately 9 million people) for approximately 21 years at zero fuel costs for FPL's customers based on last year's annual fuel costs.

Q. Please discuss the projected fuel diversity and CO_2 emission reduction benefits for Turkey Point 6 & 7.

A. Regarding system fuel diversity, in 2024 the relative percentages of the total energy supplied by FPL that is projected to be generated by natural gas and nuclear, without Turkey Point 6 & 7, are approximately 72% and 21%, respectively. With Turkey Point 6 & 7, these projected percentages change to

approximately 58% for natural gas and 35% for nuclear. Thus FPL is projected to be far less reliant on natural gas, and more reliant upon nuclear energy, by approximately 14% each.

These percentage changes in system fuel use for a system the size of FPL's 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 amount of energy is projected to be approximately 17.7 million MWh. The current forecasted average annual energy use per residential customer in 2024 is 13,314 kWh. Therefore, the projected output from Turkey Point 6 & 7 in 2024 will serve the equivalent of the total annual electrical usage of approximately 1,329,000 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 can be thought of as saving 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.

Q. In regard to fuel diversity, is there another aspect of FPL's projected fuel mix that should be kept in mind when considering the addition of Turkey Point 6 & 7.

A. Yes. FPL's fuel mix currently consists of coal-based energy contributions from several sources including FPL's partial ownership of coal units at the Scherer and St. John's sites, plus coal-based power purchase agreements (PPAs) with Cedar Bay, Indiantown, and St. John's. A substantial amount of this coal-based capacity and energy is projected to end between 2019 and 2025.

The St. John's 375 MW PPA is currently projected to effectively end around April 2019 due to Internal Revenue Service regulations on the cumulative amount of energy that FPL can receive under this agreement. In addition, the current agreements with Cedar Bay (250 MW) and Indiantown (330 MW) are scheduled to terminate in 2024 and 2025, respectively. It is unknown if future agreements with these two facilities could be reached, particularly given the current economics of coal versus natural gas and the possibility of new environmental regulations that will be unfavorable to coal energy production. For the same reasons, it is unlikely that any new coal-fired generation will be added – by anyone – in Florida for the foreseeable future.

The projected loss of this coal-based capacity is accounted for in the previously mentioned gas versus nuclear fuel mix percentage values. The

important point regarding gas and coal usage is that the contribution of coal generation will decline; not that projected gas usage is increasing while coal usage remains constant. Instead, gas usage is projected to increase, in part, because the usage of one non-gas fuel - coal - is expected to substantially decline in the near future. The role of additional nuclear energy in regard to fuel diversity thus becomes even more important than may be apparent in the gas vs. nuclear percentage values previously discussed when one recognizes that coal usage will actually be significantly declining in absolute terms.

Q. What is the projected impact of Turkey Point 6 & 7 on FPL's system CO_2 emissions?

A. In regard to 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 267 million tons of CO_2. This will be a significant reduction in CO_2 emissions, representing approximately 654% of the total CO_2 emissions from all FPL-owned generating units in 2013 (which was approximately 41 million tons). 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 more than 24,000 MW of generation for approximately 78 months, or approximately 6.5 years, with zero CO_2 emissions.

Q. In regard to the projected fuel cost savings and emission reductions discussed above, does Turkey Point 6 & 7 provide other benefits for FPL's customers?

A. Yes. Nuclear power provides an important hedge for customers against the potential for future natural gas prices to be higher than forecasted and the potential for costly environmental (especially CO_2) regulations. Because the price of nuclear fuel is unrelated to fossil fuel prices, and because it produces no SO_2, NO_x, CO_2, etc., emissions in producing electricity, it is a superb hedge against higher fossil fuel costs and environmental compliance costs.

Q. In regard to potential savings for FPL's customers, are the hedge benefits of Turkey Point 6 & 7 still significant in light of lower forecasted fuel costs in 2014 compared to 2013 and no change in forecasted environmental compliance costs?

A. Yes. The potential hedge benefits of Turkey Point 6 & 7 remain very large. The new nuclear capacity is projected to provide FPL's customers with the greatest benefit in those future scenarios where customers need the most assistance: scenarios with high future costs for natural gas and environmental compliance. In the 2014 feasibility analyses, the potential hedge benefits are projected to be up to approximately $60 billion CPVRR assuming a 40-year operating life of the units, and up to approximately $75 billion CPVRR assuming a 60-year operation life.

Q. Please explain.

A. Exhibit SRS-10 illustrates this using the 40-year operating life assumption for Turkey Point 6 & 7. Page 1 of 2 of this exhibit focuses on how much projected CPVRR costs for resource plans have changed from 2013 to 2014. The projected CPVRR costs for the Resource Plan without Turkey Point

6 & 7 from FPL's 2013 feasibility analyses and from this year's feasibility analyses are utilized in this comparison. CPVRR costs for all 7 scenarios of fuel costs and environmental costs are presented. The order in which these scenarios are presented has been changed so that the projected CPVRR costs appear roughly in order from highest cost at the top of the exhibit to lowest cost at the bottom of the exhibit.

The projected CPVRR costs from the 2013 feasibility analyses and from the 2014 feasibility analyses are presented in Columns (3) and (4), respectively. Column (5) then presents the amount by which the projected CPVRR cost of the Resource Plan without Turkey Point has changed from the 2013 feasibility analysis to the 2014 feasibility analysis. The amount by which the projected CPVRR costs have changed is substantial, ranging from approximately $10.4 billion CPVRR to $13.5 billion CPVRR. Although, as previously discussed, a number of assumptions have changed including FPL's load forecast, resource plan, etc., much of the substantial change in CPVRR costs is due to lower forecasted fuel costs.

Page 2 of 2 of the exhibit focuses solely on the 2014 feasibility analysis results and how much variation exists in the projected CPVRR costs between the 7 scenarios. Column (3) on page 2 of 2 again presents the projected CPVRR costs for each of the 7 scenarios from this year's feasibility analyses. Column (4) then presents the projected CPVRR cost differences for each

scenario compared to the lowest cost scenario (Low Fuel Cost, Env I) shown on the bottom row of the exhibit. The lowest cost scenario was chosen as the point of comparison because it is the scenario for which the projected breakeven capital cost for Turkey Point 6 & 7 (shown in Column (8)) is the lowest; i.e., the scenario for which the new nuclear units are projected to have the least value.

The differential values presented in Column (4) show that significant projected cost differences between the remaining 6 scenarios and the lowest cost scenario remain even with the lower 2014 forecasted fuel costs. These projected cost differences begin at approximately $21 billion CPVRR and range up to approximately $60 billion CPVRR. Column (5) also presents these differences in terms of percentage changes from the lowest cost scenario and the percentage differences range from 17% to 48%.

Column (6) offers an FPL customer perspective regarding the projected costs and electric rates associated with each scenario. The best scenario in this regard for FPL's customers is that shown on the bottom row of the exhibit. Every other scenario is projected to have higher costs and higher electric rates, thus resulting in a worsening future scenario for FPL's customers in regard to costs and electric rates that are largely driven by higher forecasted fuel costs.

Column (7) presents the relative level of hedge benefits of Turkey Point 6 & 7 for the various scenarios. The hedge benefits of the two nuclear units are highest when examining the top row of the exhibit in which projected fuel costs (and environmental compliance costs) are the highest. The hedge benefits of Turkey Point 6 & 7 are at their lowest in the bottom row in which projected fuel costs (and environmental compliance costs) are the lowest. However, in the last row, FPL's customers are already projected to have costs lower than in any other scenario by approximately $21 billion CPVRR to $60 billion CPVRR.

In summary, although current fuel cost forecasts are lower than those used in the 2013 feasibility analyses and there has been no change in forecasted environmental compliance costs, Turkey Point 6 & 7 continue to offer enormous hedge benefits for FPL's customers in regard to potential long-term cost savings.

Q. Does Turkey Point 6 & 7 provide other hedge benefits?

A. Yes. There are potential avoided cost or hedge benefits that will be provided by Turkey Point 6 & 7 if a "nuclear neutral" Renewable Portfolio Standard (RPS) or Clean Energy Standard (CES) mandate is imposed in the future. In such a circumstance the 2,200 MW of Turkey Point's nuclear capacity will reduce the need for, and the cost of, a large amount of renewable generation that would otherwise need to be built to meet the mandate. Such cost savings

would likely be significant. This mandate has the possibility to occur in the future with or without the establishment of CO_2 compliance costs.

Q. Will Turkey Point 6 & 7 also defer/avoid costs of new transmission facilities that would otherwise be needed to import power into the Southeastern Florida region?

A. Yes. The addition of 2,200 MW of capacity from Turkey Point 6 & 7 in Miami-Dade County is projected to achieve significant transmission cost savings by avoiding the construction of transmission facilities that would otherwise need to be built to import power from outside the Southeastern Florida region (Miami-Dade and Broward Counties) into that region. These savings are currently projected to be approximately $2 billion CPVRR. This savings value is accounted for in FPL's 2014 feasibility analyses of the Turkey Point 6 & 7 project as an additional cost incurred in the Without Turkey Point 6 & 7 resource plans.

Q. In regard to exhibits that accompany other FPL witnesses' testimonies in this docket, was any of the information presented in those exhibits provided by you?

A. Yes. The projected capital cost savings for FPL's customers in regard to the EPU project that results from Florida's Nuclear Cost Recovery process that is presented in FPL's witness Jones' Exhibit TOJ-6, page 2 of 2, is based on an analysis that was performed under my supervision. The result of that analysis is that FPL's customers are projected to save approximately $300 million

(nominal), or $81 million (CPVRR), due to Florida's Nuclear Cost Recovery process in regard to the EPU project.

Q. Please briefly explain how the Nuclear Cost Recovery process saves money for FPL's customers.

A. The Nuclear Cost Recovery process allows for annual recovery of interest costs incurred through construction, rather than long-term recovery under the normal Allowance for Funds Used During Construction (AFUDC) approach. This enables FPL's customers to avoid paying significant compounded interest charges they would otherwise incur.

Q. Was a similar analysis performed regarding the projected capital cost savings for FPL's customers from Florida's Nuclear Cost Recovery process in regard to Turkey Point 6 & 7?

A. Yes. Similar analyses of the projected capital cost savings for FPL's customers in regard to Turkey Point 6 & 7 that results from Florida's Nuclear Cost Recovery process were performed under my supervision. The results of one of these analyses, assuming the high-end of the non-binding capital cost range and a 40-year operating life, are presented in FPL witness Scroggs' Exhibit SDS-10, page 1 of 1. The result of this analysis is that Florida's Nuclear Cost Recovery process is projected to save FPL's customers approximately $10.4 billion (nominal), or $293 million (CPVRR), in capital cost savings. Another analysis that was performed, assuming the low-end of the non-binding capital cost estimate range, and a 40-year operating life for the units, resulted in a projection that Florida's Nuclear Cost Recovery

process will save FPL's customers approximately $7.3 billion (nominal), or $249 (CPVRR), in capital cost savings.

Q. What conclusions do you draw from the results of the 2014 feasibility analyses of Turkey Point 6 & 7?

A. In regard to these economic feasibility analyses, the Turkey Point 6 & 7 project is projected to be the economic choice in at least half of the 14 scenarios analyzed. In the single scenario in which the two new nuclear units are not projected to be economic, that scenario assumes low natural gas costs each year through 2063, low environmental compliance costs each year through 2063, and the lower of the assumed operating lives for the two units. Under the assumptions utilized in this one particular scenario, FPL's customers are still projected to have significantly lower CPVRR costs than in all other scenarios. Therefore, Turkey Point 6 & 7 is projected to not only be the economic choice in at least half of the 14 cases analyzed, it will also be beneficial to FPL's customers in terms of increased system fuel diversity, reduced system emissions, and as a significant hedge against higher fuel and environmental compliance costs.

Thus, the results of the 2014 feasibility analyses strongly 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 2014 Feasibility Analyses of the Turkey Point 6 & 7 Project (Plus Results from Additional Analyses)

	Case # 1 Analyses (40-Year Life)	Case # 2 Analyses (60-Year Life)
1) Number of fuel cost/environmental compliance cost scenarios in which the Turkey Point 6 & 7 project is projected to be cost-effective:	2 of 7	5 of 7
2) Projected fuel savings for FPL's customers in first full year of operation (approximate nominal $):*	$644 million	$644 million
3) Projected fuel savings for FPL's customers over the life of Turkey Point 6 & 7 (approximate nominal $):	$64 billion	$173 billion
4) Number of years of equivalent zero system fuel cost for FPL's customers based on projected fuel savings over the life of Turkey Point 6 & 7 compared to FPL's 2013 annual system fuel cost (approximate years):	21 years	56 years
5) Projected percentage of total FPL energy produced from natural gas and nuclear in first full year of operation of the nuclear units (approximate %):*		
- without Turkey Point 6 & 7	72% Gas & 21% Nuclear	72% Gas & 21% Nuclear
- with Turkey Point 6 & 7	58% Gas & 35% Nuclear	58% Gas & 35% Nuclear
6) Equivalent approximate number of residential customers' annual energy use supplied by Turkey Point 6 & 7 in the first full year of operation*	1,329,000	1,329,000
7) Equivalent annual amount of fossil fuel saved by Turkey Point 6 & 7 beginning in the first full year of operation (approximate):*		
- Equivalent mmBTU of natural gas	177 million	177 million
- Equivalent barrels of oil	28 million	28 million
8) Projected amount of CO_2 emissions reduced by Turkey Point 6 & 7 over the life of the units:	267 million tons	418 million tons
9) Number of months in which FPL's generating system would operate with the equivalent of zero CO_2 emissions based on projected CO_2 emission reduction compared to FPL's 2013 system CO_2 emissions (approximate):	78 (or 6.5 years)	123 (or 10.3 years)

* The first full year of operation for both Turkey Point 6 & 7 units is assumed to be 2024 in both cases.

Comparison of Key Assumptions Utilized in the 2013 and 2014
Feasibility Analyses of the Turkey Point 6 & 7 Project:
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	2013 Feasibility Analysis	2014 Feasibility Analysis	Change in 2014 Forecast
2022	$7.66	$6.62	($1.04)
2025	$9.02	$7.65	($1.37)
2030	$10.60	$9.19	($1.41)
2035	$12.86	$11.06	($1.80)
2040	$15.54	$13.32	($2.22)

	(1)	(2)	(3) = (2) - (1)
	Forecasted 1% S Oil Cost ($/mmBTU)		
Selected Years	2013 Feasibility Analysis	2014 Feasibility Analysis	Change in 2014 Forecast
2022	$19.19	$18.48	($0.71)
2025	$22.08	$20.93	($1.15)
2030	$24.87	$23.08	($1.79)
2035	$27.08	$25.00	($2.09)
2040	$29.39	$27.07	($2.32)

	(1)	(2)	(3) = (2) - (1)
	Forecasted Nuclear Fuel Cost ($/mmBTU)		
Selected Years	2013 Feasibility Analysis	2014 Feasibility Analysis	Change in 2014 Forecast
2022	$0.87	$0.87	$0.00
2025	$1.07	$1.07	$0.00
2030	$1.08	$1.08	$0.00
2035	$1.22	$1.22	$0.00
2040	$1.39	$1.39	$0.00

Comparison of Key Assumptions Utilized in the 2013 and 2014 Feasibility Analyses of the Turkey Point 6 & 7 Project: 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	2013 Feasibility Analysis	2014 Feasibility Analysis	Change in 2014 Forecast
2022	$67	$67	$0
2025	$72	$72	$0
2030	$82	$82	$0
2035	$93	$93	$0
2040	$105	$105	$0

	(1)	(2)	(3) = (2) - (1)
	Forecasted NO_x Compliance Cost ($/ton)		
Selected Years	2013 Feasibility Analysis	2014 Feasibility Analysis	Change in 2014 Forecast
2022	$605	$605	$0
2025	$652	$652	$0
2030	$737	$737	$0
2035	$834	$834	$0
2040	$944	$944	$0

	(1)	(2)	(3) = (2) - (1)
	Forecasted CO_2 Compliance Cost ($/ton)		
Selected Years	2013 Feasibility Analysis	2014 Feasibility Analysis	Change in 2014 Forecast
2022	$0	$0	$0
2025	$11	$11	$0
2030	$21	$21	$0
2035	$38	$38	$0
2040	$64	$64	$0

Comparison of Key Assumptions Utilized in the 2013 and 2014
Feasibility Analyses of the Turkey Point 6 & 7 Project:
Summer Peak Demand Load Forecast
(Summer MW)

	(1)	(2)	(3) = (2) - (1)	(4)	(5)
Selected Years	2013 Feasibility Analysis	2014 Feasibility Analysis	Change in 2014 Forecast	Annual Growth with 2014 Peak Demand Forecast	Cumulative Growth with 2014 Peak Demand Forecast
2014	22,928	22,768	(160)	---	---
2015	23,359	23,356	(3)	587	587
2016	23,733	23,778	44	422	1,009
2017	24,122	24,190	68	412	1,422
2018	24,493	24,544	51	354	1,775
2019	24,901	24,896	(6)	352	2,127
2020	25,302	25,239	(63)	344	2,471
2021	25,560	25,439	(121)	200	2,670
2022	26,105	25,908	(197)	469	3,139
2023	26,782	26,528	(254)	621	3,760
2024	27,475	27,214	(261)	686	4,446
2025	28,154	27,877	(277)	663	5,109
2030	31,228	30,786	(442)	*	*
2035	33,714	33,444	(270)	*	*
2040	35,996	35,957	(40)	*	*

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

Projection of FPL's Resource Needs Through 2025
(Assuming No Turkey Point 6 & 7 and No Other Generation Additions from 2022 - On)

August of the Year	(1) Projected FPL Unit Capability * (MW)	(2) Projected Firm Capacity Purchases (MW)	(3) Projected Scheduled Maintenance** (MW)	(4) = (1) + (2) - (3) Projected Total Capacity (MW)	(5) Projected Peak Load (MW)	(6) Projected Summer DSM Capability *** (MW)	(7) = (5) - (6) Projected Firm Peak Load (MW)	(8) = (4) - (7) Projected Summer Reserves (MW)	(9) = (8) / (7) Projected Summer Total Reserve Margin w/o Additions (%)	(10) = ((7)*1.20)-(4) **Projected MW Needed to Meet 20% Reserve Margin**** **(MW)**	(11) = ((4)-(5)) / (5) Projected Generation-Only Reserve Margin w/o Additions (%)
2014	25,502	1,938	826	26,614	22,768	1,992	20,777	5,837	28.1%	(1,682)	16.9%
2015	25,121	2,044	0	27,165	23,356	2,058	21,298	5,868	27.5%	(1,608)	16.3%
2016	26,358	1,116	0	27,474	23,778	2,083	21,695	5,779	26.6%	(1,440)	15.5%
2017	25,916	1,116	0	27,032	24,190	2,109	22,081	4,952	22.4%	(535)	11.7%
2018	25,916	1,080	0	26,996	24,544	2,137	22,407	4,589	20.5%	(108)	10.0%
2019	26,930	705	0	27,635	24,896	2,167	22,729	4,906	21.6%	(360)	11.0%
2020	26,930	834	0	27,764	25,239	2,197	23,042	4,721	20.5%	(113)	10.0%
2021	26,930	1,053	0	27,983	25,439	2,228	23,211	4,772	20.6%	(130)	10.0%
2022	27,017	885	0	27,902	25,908	2,260	23,648	4,254	18.0%	476	7.7%
2023	27,072	885	0	27,957	26,528	2,293	24,235	3,721	15.4%	1,126	5.4%
2024	27,100	885	0	27,985	27,214	2,328	24,887	3,098	12.4%	1,880	2.8%
2025	27,100	635	0	27,735	27,877	2,323	25,554	2,181	8.5%	2,930	-0.5%

* MW values shown in Column (2) include: retirement of Putnam units 1&2 at the end of 2014, the completion of the Port Everglades modernization project in 2016, the retirement of all existing GTs in Broward County in late 2018 & the addition of 5 new CTs at the Lauderdale site in late 2018, the addition of a new unsited CC unit in 2019, and the addition of the Eco-Gen PPA in 2021, and the addition of small PPAs in 2020 and 2021.

** MW values shown in Column (3) represent 826 MW out-of-service during the Summer of 2014 due to the installation of electrostatic precipitators at FPL's 800 MW generating units.

*** The DSM values shown in Column (6) account for incremental DSM additions proposed in the 2014 DSM Goals docket through 2024 and for projected annual attrition in FPL's existing residential load management program.

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

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Projection of FPL's Resource Needs Through 2025
Exhibit SRS-5, Page 1 of 1

Comparison of Key Assumptions Utilized in the 2013 and 2014
Feasibility Analyses of the Turkey Point 6 & 7 Project: Other Assumptions

Assumption	(1) Value for 2013 Feasibility Analysis	(2) Value for 2014 Feasibility Analysis	(3) = (2) - (1) Change in 2014 Forecast
1) Number of Environmental Compliance Cost Scenarios	3	3	----
2) Financial/Economic Assumptions (Base Case):			
- Capital Structure (debt/equity)	40.38%/59.62%	40.38%/59.62%	----
- Cost of Debt	4.79%	5.14%	----
- Return on Equity	10.50%	10.50%	----
- Discount Rate (after tax)	7.45%	7.54%	----
3) CC Generator Capital ($/kW in 2022, w/o AFUDC)	$898	$883	($15)
4) CC Heat Rate (Base 100%, BTU/kWh)	6,334	6,334	0
5) Firm Gas Transportation Cost ($/mmBTU in 2023)	$2.23	$1.20	(1.03)
6) Assumed In-Service Dates for Turkey Point Units 6 & 7	2022 & 2023	2022 & 2023	---
7) Assumed Operating Lives of Turkey Point Units 6 & 7	40 years	40 years or 60 years	No change or 20 years
8) Non-Binding Overnight Cost Estimate for New Nuclear Units ($/kW)	$3,659 to $5,320 in 2013$	$3,750 to $5,453 in 2014$	----
9) Previously Spent Capital Costs Now Excluded ($ millions, approx.)	$192	$228	$36
10) Cumulative Annual Capital Expenditure Percentage for TP 6 & 7 (assuming 2022 & 2023 in-service dates):			
2014	1.7%	1.6%	(0.0) %
2015	7.9%	1.7%	(6.1) %
2016	17.2%	13.6%	(3.7) %
2017	27.4%	27.1%	(0.3) %
2018	41.7%	41.9%	0.2 %
2019	57.5%	57.6%	0.1 %
2020	72.1%	72.1%	0.1 %
2021	85.4%	85.4%	0.0 %
2022	97.2%	97.2%	0.0 %
2023	100.0%	100.0%	0.0 %

The Two Resource Plans Utilized in FPL's 2014 Feasibility Analyses of the Turkey Point 6 & 7 Project

Resource Plan with TP 6&7	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030 - on
Unit(s)/capacity added	---	---	Port Everglades Modernization	---	---	(1) Greenfield 3x1 CC Unit, Retirement of 1,260 MW of existing GTs, & 1,005 MW of new CTs	129 MW one-year PPA	180 EcoGen PPA & 168 MW one-year PPA	Turkey Point 6	Turkey Point 7	---	730 MW one-year PPA	(2) Greenfield 3x1 CC Unit	(1) Greenfield 3x1 CC Unit	---	(1) Greenfield 3x1 CC Unit	*
Projected Summer Total Reserve Margin	28.1%	27.5%	26.6%	22.4%	20.5%	21.6%	20.5%	20.6%	22.6%	24.4%	21.3%	20.0%	22.7%	24.5%	21.8%	24.1%	(meets criterion in all yrs)
Projected Summer Generation Only Reserve Margin	16.9%	16.3%	15.5%	11.7%	10.0%	11.0%	10.0%	10.0%	11.9%	13.7%	10.9%	10.0%	12.8%	14.6%	12.3%	14.6%	(meets criterion in all yrs)

Resource Plan without TP 6&7	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030 - on
Unit(s)/capacity added	---	---	Port Everglades Modernization	---	---	(1) Greenfield 3x1 CC Unit, Retirement of 1,260 MW of existing GTs, & 1,005 MW of new CTs	129 MW one-year PPA	180 EcoGen PPA & 168 MW one-year PPA	(1) Greenfield 3x1 CC Unit	---	(1) Greenfield 3x1 CC Unit	392 MW one-year PPA	(2) Greenfield 3x1 CC Unit	---	(1) Greenfield 3x1 CC Unit	---	*
Projected Summer Total Reserve Margin	28.1%	27.5%	26.6%	22.4%	20.5%	21.6%	20.5%	20.6%	23.4%	20.6%	22.6%	20.0%	24.0%	21.1%	23.1%	20.7%	(meets criterion in all yrs)
Projected Summer Generation Only Reserve Margin	16.9%	16.3%	15.5%	11.7%	10.0%	11.0%	10.0%	10.0%	12.6%	10.2%	12.2%	10.0%	13.9%	11.4%	13.5%	11.5%	(meets criterion in all yrs)

Notes: - FPL's total reserve margin criterion is a minimum of 20.0% and its generation-only reserve margin is a minimum of 10%.
- Reserve margin values shown account for: retirement of Putnam units 1&2 at the end of 2014, the completion of the Port Everglades modernization project in 2016, the retirement of all existing GTs in Broward County in late 2018 & the addition of 5 new CTs at the Lauderdale site in late 2018, the addition of a new unsited CC unit in 2019, and the addition of the Eco-Gen PPA in 2021, and the addition of small PPAs in 2020 and 2021.

* The remaining unit additions starting in the year 2030 are 635 MW Filler Unit additions.

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The Two Resource Plans Utilized in FPL's 2014 Feasibility Analyses of the Turkey Point 6 & 7 Project
Exhibit SRS-7, Page 1 of 1

2014 Feasibility Analyses Results for the Turkey Point 6 & 7 Project: Case # 1 Analysis - 40-Year Operating Life; Total Costs, Total Cost Differentials, and Breakeven Costs for All Fuel and Environmental Compliance Cost Scenarios in 2014$ (millions, CPVRR, 2014 - 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 ($/kW in 2014$)
		Resource Plan w/ TP 6 & 7	Resource Plan w/o TP 6 & 7		
High Fuel Cost	Env I	154,450	167,782	(13,332)	5,256
High Fuel Cost	Env II	161,221	175,393	(14,172)	5,587
High Fuel Cost	Env III	170,222	185,345	(15,123)	5,962
Medium Fuel Cost	Env I	135,373	146,710	(11,337)	4,471
Medium Fuel Cost	Env II	142,065	154,240	(12,175)	4,801
Medium Fuel Cost	Env III	150,977	164,103	(13,127)	5,176
Low Fuel Cost	Env I	116,223	125,557	(9,335)	3,683

*The TP 6 & 7 savings values in Column (5) also represent CPVRR breakeven capital costs for each scenario.

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.

2014 Feasibility Analyses Results for the Turkey Point 6 & 7 Project: Case # 2 Analysis - 60-Year Operating Life; Total Costs, Total Cost Differentials, and Breakeven Costs for All Fuel and Environmental Compliance Cost Scenarios in 2014$ (millions, CPVRR, 2014 - 2083)

(1)	(2)	(3)	(4)	(5) = (3) - (4)	(6)
Fuel Cost Forecast	Environmental Compliance Cost Forecast	Total Costs for Plans: Resource Plan w/ TP 6 & 7	Total Costs for Plans: Resource Plan w/o TP 6 & 7	Total Cost Difference Plan with TP 6 & 7 minus Plan without TP 6 & 7 *	Breakeven Nuclear Capital Costs ($/kW in 2014$)
High Fuel Cost	Env I	190,221	206,222	(16,001)	6,307
High Fuel Cost	Env II	200,291	217,457	(17,166)	6,766
High Fuel Cost	Env III	212,986	231,467	(18,480)	7,283
Medium Fuel Cost	Env I	167,617	181,275	(13,659)	5,385
Medium Fuel Cost	Env II	177,608	192,429	(14,821)	5,843
Medium Fuel Cost	Env III	190,219	206,355	(16,136)	6,360
Low Fuel Cost	Env I	144,940	156,250	(11,309)	4,460

*The TP 6 & 7 savings values in Column (5) also represent CPVRR breakeven capital costs for each scenario.

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.

A Look at Projected Hedge Benefits from Turkey Point 6 & 7

1) A Comparison of Projected Total Costs for the Resource Plan without Turkey Point 6 & 7: 2013 NCR Filing vs. 2014 NCR Filing (millions, CPVRR)

(1)	(2)	(3)	(4)	(5) = (3) - (4)
Fuel Costs	Environmental Compliance Costs	2013 NCR Projected Total Costs for Resource Plan w/o TP 6 & 7	2014 NCR Projected Total Costs for Resource Plan w/o TP 6 & 7	Differential
High Fuel Costs	Env III	198,472	185,345	13,127
High Fuel Costs	Env II	188,772	175,393	13,380
High Fuel Costs	Env I	181,279	167,782	13,497
Medium Fuel Costs	Env III	175,667	164,103	11,564
Medium Fuel Costs	Env II	166,068	154,240	11,828
Medium Fuel Costs	Env I	158,661	146,710	11,951
Low Fuel Costs	Env I	135,927	125,557	10,369

Conclusion:
Projected CPVRR costs have substantially decreased from the 2013 feasibility analyses.

Notes:
1) Values in Column (3) are from Exhibit SRS - 8 in FPL's 2013 NCR filing.
2) Values in Column (4) are from Exhibit SRS - 8 in FPL's 2014 NCR filing.

A Look at Projected Hedge Benefits from Turkey Point 6 & 7

2) A Comparison of Projected CPVRR Costs vs. the Low Fuel Cost, Env I Scenario

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Fuel Costs	Environmental Compliance Costs	2014 NCR Projected Total Costs for Resource Plan w/o TP 6 & 7 (millions, CPVRR) 2014-2063)	Projected Increased Costs To FPL's Customers Compared to the Lowest Cost Scenario (millions, CPVRR) 2014-2063)	Projected Increased Costs To FPL's Customers Compared to the Lowest Cost Scenario (%)	FPL Customers' Situation in Regard to Total Costs and Electric Rates *	Hedge Benefit of TP 6 & 7	Breakeven Nuclear Capital Costs ($/kW in 2014$)
High Fuel Costs	Env III	185,345	59,788	48%	Worst	Very High	$5,962
High Fuel Costs	Env II	175,393	49,835	40%	↑	High	$5,587
High Fuel Costs	Env I	167,782	42,224	34%		High	$5,256
Medium Fuel Costs	Env III	164,103	38,546	31%		High	$5,176
Medium Fuel Costs	Env II	154,240	28,683	23%		Moderate	$4,801
Medium Fuel Costs	Env I	146,710	21,152	17%	↓	Moderate	$4,471
Low Fuel Costs	Env I	125,557	---	---	Best	Low	$3,683

Conclusion:
Despite projected CPVRR costs decreasing in the 2014 feasibility analyses, the projected CPVRR cost range over the 7 scenarios varies by approximately $60 billion CPVRR. Thus Turkey Point 6 & 7 offers significant hedge benefits to FPL's customers in regard to future high fuel costs.

Notes:
1) Values in Columns (3) and (8) are from Exhibit SRS - 8. Values in Column (3) also appear in Exhibit SRS -10, page 1 of 2.
2) Values in Columns (4) and (5) are the differentials between the Total Cost values in each row of Column (3) and the $125,557 million CPVRR value in the last row of Column (3).

* Assumes Total Costs in each scenario are recovered over the same number of sales.

CERTIFICATE OF SERVICE
DOCKET NO. 140009-EI

I HEREBY CERTIFY that a true and correct copy of FPL's Petition for Approval of Nuclear Power Plant Cost Recovery Amount for the Year 2015, with accompanying testimony and exhibits, was served electronically this 1st day of May, 2014 to the following:

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