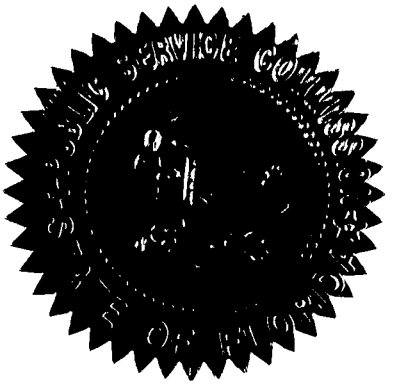
BEFORE THE
FLORIDA PUBLIC SERVICE COMMISSION

DOCKET NO. 080148-EI

In the Matter of:

PETITION FOR DETERMINATION OF NEED FOR LEVY UNITS 1 AND 2 NUCLEAR POWER PLANTS, BY PROGRESS ENERGY FLORIDA, INC.
_____/



VOLUME 5

Pages 429 through 552

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PROCEEDINGS:	HEARING
BEFORE:	CHAIRMAN MATTHEW M. CARTER, II COMMISSIONER LISA POLAK EDGAR COMMISSIONER KATRINA J. McMURRIAN COMMISSIONER NANCY ARGENZIANO COMMISSIONER NATHAN A. SKOP
DATE:	Thursday, May 22, 2008
TIME:	Commenced at 9:30 p.m.
PLACE:	Betty Easley Conference Center Room 148 4075 Esplanade Way Tallahassee, Florida
REPORTED BY:	JANE FAUROT, RPR Official FPSC Reporter (850) 413-6732
PARTICIPATING:	(As heretofore noted.)

I N D E X

WITNESSES

EXHIBITS

NUMBER:		ID.	ADMTD.
71	Summary Exhibit	522	
72	(Late-filed) Expiration of Coal Contracts for Progress	531	550
44-52			550

P R O C E E D I N G S

(Transcript follows in sequence from Volume 4.)

CHAIRMAN CARTER: We are back on the record. Call your next witness.

MR. WALLS: We call Ben Crisp to the stand.

CHAIRMAN CARTER: Benjamin Crisp.

JOHN BENJAMIN CRISP

was called as a witness on behalf of Progress Energy Florida, and having been duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. WALLS:

Q Mr. Crisp, will you please introduce yourself to the Commission and provide your business address, please.

CHAIRMAN CARTER: Has Mr. Crisp been sworn?

MR. WALLS: Yes, he has.

A My name is Ben Crisp. I work for Progress Energy Florida as Director of System Planning and Regulatory Performance.

Q Have you filed prefiled direct testimony and exhibits in this proceeding?

A Yes, sir, I have.

Q Do you have any changes to make to your prefiled testimony and exhibits?

A Yes, sir, I do.

In Appendix I of the need study on the first page of

Appendix I, that's a table that includes Strategist optimization scenarios for February 21, 2008, data runs. On that table for the Levy need analysis full ownership case, the 100 percent Levy Unit 1 output is changed to 1,092 megawatts. For the 80 percent joint-ownership case, the Levy output at 80 percent is 874 megawatts.

The second change that I have is on the last page of Appendix 1, in the second table titled operating cost estimate for Strategist modeling. It reads currently "summer basis" and that should read "winter basis". Those are the two changes that I have.

Q Mr. Crisp, with these changes, if I asked you the same questions in your prefiled testimony today, would you give the same answers that are in your prefiled testimony?

A Yes, sir.

MR. WALLS: We request that Mr. Crisp's prefiled testimony be moved into evidence as if it was read in the record today.

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

IN RE: PETITION FOR DETERMINATION OF NEED FOR LEVY UNITS 1 AND 2 NUCLEAR POWER PLANTS

FPSC DOCKET NO. _____-EI

DIRECT TESTIMONY OF JOHN BENJAMIN CRISP

I. INTRODUCTION AND QUALIFICATIONS

Q. Please state your name and business address.

A. My name is John Benjamin (Ben) Crisp. My business address is 6565 38th Avenue N., St. Petersburg, Florida 33710.

Q. Please tell us how you are employed and describe your background.

A. I am employed by Progress Energy Florida, Inc. ("PEF" or the "Company") as the Director of System Planning and Regulatory Performance for PEF. I have over 20 years of electric utility experience in generation, transmission and fuels planning, load forecasting, generation construction, plants operations, system operations, fuels and power trading, and energy efficiency systems. I have served in various management positions for Progress Energy, including Manager of Energy Efficiency Programs and Director of Resource Planning. I have a bachelor's degree in Industrial Engineering from Georgia Tech, and have completed post graduate marketing and management programs at Georgia Tech and Duke University.

II. PURPOSE AND SUMMARY OF TESTIMONY

Q. What is the purpose of your testimony?

A. I am providing testimony to support the Company's Petition for determination of need for Levy Units 1 and 2. I will provide an overview of Levy Units 1 and 2 that the Company proposes to build. Then I will discuss PEF's Integrated Resource Planning ("IRP") process, including the impact of the Florida Renewable Energy Technologies and Energy Efficiency Act of 2006 (the "2006 Florida Energy Act") on that process. I will explain how the Company's IRP process led the Company to identify Levy Units 1 and 2 to meet the Company's generation reliability need for the time period 2016 to 2019 and beyond. I will explain that the Company determined Levy Units 1 and 2 were superior to other supply-side alternatives, including renewable generation resources, which were commercially available to the Company to meet its reliability need. I will further generally explain how existing and planned Demand Side Management ("DSM") programs fail to mitigate the need for Levy Units 1 and 2. As a result of the Company's analysis, I will explain that the Company has determined that (1) Levy Units 1 and 2 will provide adequate electricity at a reasonable cost, and (2) they are the most cost-effective alternative to meet the Company's need when the criteria of fuel diversity, fuel independence, emission compliance, and long-term stability and reliability under Section 403.519(40(b)3, Florida Statutes, are considered as the Florida Legislature directed. I will conclude by explaining that the Company has therefore decided to proceed at this time with the need determination for Levy Units 1 and 2. Detailed information concerning the Company's decision to build Levy Units 1 and 2 is contained in the Need Determination Study for Levy Units 1 and 2, provided as Exhibit No. ___ (JBC-1) to my testimony.

Q. Are you sponsoring any sections of the Company's Need Study, Exhibit No. ___ (JBC-1)?

A. Yes. In general I am the sponsor of the Need Study, and in particular I am sponsoring Section I, the "Executive Summary;" Section II, the "Introduction;" the following subsections of Section IV, "Resource Need and Identification," subsections A, B, C1., C2., C3.c., C6., C7., C8., C9.b., C9.c., C9.d., C9.e., C9.f., C9.h.; Section V, the "Conclusions," and Section VI, the "Adverse Consequences of Delay." The Need Study was prepared under my direction, and it is accurate.

Q. Are you sponsoring any exhibits to your testimony?

A. Yes. I am sponsoring the following exhibits to my testimony:

- Exhibit No. ___ (JBC-1), PEF's Need Study for Levy Units 1 and 2;
- Exhibit No. ___ (JBC-2), PEF's Resource Plan with Levy Units 1 and 2;
- Exhibit No. ___ (JBC-3), Forecasts of summer and winter demand and reserves with and without Levy Unit 1;
- Exhibit No. ___ (JBC-4), Forecasts of summer and winter demand and reserves with and without Levy Unit 2;
- Exhibit No. ____ (JBC-5), PEF's fuel forecasts for nuclear, natural gas, and oil;
- Exhibit No. ___ (JBC-6), PEF's 2018 daily system load forecast with and without Levy Units 1 and 2;
- Exhibit No. ____ (JBC-7), PEF's current system energy mix;

- Exhibit No. _____ (JBC-8), PEF's 2018 system energy mix with and without Levy Units 1 and 2; and
- Exhibit No. ____ (JBC-9), the table of the Cumulative Present Value Revenue Requirements (CPVRR") of the Resource Plan with Levy Units 1 and 2, including changes in natural gas prices and potential impacts from greenhouse gas ("GHG") regulation, compared to an all gas generation resource plan alternative.

Each of these exhibits was prepared under my direction, and each is accurate.

Q. Please summarize your testimony.

A. PEF needs Levy Units 1 and 2 in the time period 2016 to 2019 and beyond, taking into account the need for electric system reliability and integrity including fuel diversity, the need for base-load generating capacity, the need for adequate electricity at a reasonable cost, and whether renewable energy sources and technologies, as well as conservation measures, are used to the extent reasonably available, as required by the 2006 Florida Energy Act. By building Levy Units 1 and 2, the Company will be able to meet its commitment to maintain a 20 percent Reserve Margin, and it will do so by adding needed additional, base load nuclear generation resources to the Company's integrated electric system. Additional nuclear generation provides customers with adequate electricity at a reasonable cost because nuclear fuel is the lowest cost fuel resource available to the Company and operation of the nuclear units will displace higher cost fossil fuel generation. The nuclear generation units will further add fuel

diversity and fuel supply reliability to PEF's system, and they will reduce PEF's and Florida's dependence on fuel oil and natural gas.

Levy Units 1 and 2 will provide PEF's customers the most cost-effective source of power, taking into account as PEF must under the 2006 Florida Energy Act, the need to (1) improve the balance of fuel diversity, (2) reduce Florida's dependence on fuel oil and natural gas, (3) reduce air emission compliance costs, and (4) contribute to the long-term stability and reliability of the electric grid. The Levy units will be state-of-the-art nuclear reactors, operating at high efficiency and availability on the lowest cost, commercially available fuel, with environmentally clean generation. They will improve fuel diversity, reduce reliance on fuel oil and natural gas, and insulate the Company and its customers from environmental costs from current and future environmental regulations, including potential GHG regulations. They will provide reliable, base load power to the PEF system. We, accordingly, request the Florida Public Service Commission ("PSC" or the "Commission") to approve the need determination for these units.

III. OVERVIEW OF LEVY UNITS 1 AND 2

Q. Please provide an overview of Levy Units 1 and 2.

A. Levy Units 1 and 2 are currently expected to be state-of-the-art, advanced passive light water nuclear power plants, with expected summer and winter capacity ratings of 1,092 MW and 1,120 MW, respectively. The Westinghouse Advanced Passive ("AP") 1000 light water nuclear reactor design was initially selected and is being considered for Levy Units 1 and 2. The summer and winter capacity ratings for Levy Units 1 and

2 are derived from the nominal 1,100 MW capacity rating for the Westinghouse AP 1000 design. This nominal capacity rating was selected by Westinghouse as the most cost-effective, efficient capacity for this generation of nuclear power plants. The Westinghouse AP1000 light water reactor design has received Design Certification and Final Design Approval from the Nuclear Regulatory Commission ("NRC").

Levy Units 1 and 2 will be highly efficient, base load nuclear power plants. They are currently expected to have low forced outage and planned outage rates. The projected annual capacity factor is expected to average 90 percent over time, depending on the outage cycles and how the units are ultimately integrated into fleet maintenance cycles. Essentially though, these nuclear units are expected to operate nearly year-round. The average net operating heat rate for the units is expected to be 9,715 BTU/kWh. Processed, enriched uranium will be the fuel for the two units. This nuclear fuel is the most price stable and lowest cost fuel available to the Company for energy generation.

The non-binding project cost estimate for Levy Units 1 and 2 is currently estimated to be $9,303 M in overnight costs (2007 dollars), excluding transmission facilities. With escalation and an estimated $3,245 M for Allowance for Funds Used During Construction ("AFUDC"), the total non-binding cost estimate for Levy Units 1 and 2 is $14,090 M (in-service cost). The estimated incremental annual fixed operation and maintenance ("O&M") expense for Levy Unit 1 is $51.17/kW-yr (Summer Basis, 2007 dollars), and the estimated variable O&M is $1.82/MWh (Summer Basis, 2007 dollars). The preliminary, non-binding cost estimate for the two nuclear units includes all land acquisition, site development, major equipment,

construction including labor and materials, training and staffing, start-up and testing, and initial fuel core load costs.

Q. Is there a difference between the estimated cost of Levy Unit 1 and Levy Unit 2?

A. Yes. Based on the current non-binding cost estimates, substantial cost savings are expected for the second nuclear unit if the second unit is constructed within twelve (12) to eighteen (18) months of the first nuclear unit. The projected cost savings for the second nuclear unit are a result of expected engineering and construction efficiencies and economies of scale, for example, from concurrent manufacturing of key components and the continuous mobilization for on-site construction of both nuclear units. These efficiencies and economies of scale significantly lower the overall cost for Levy Units 1 and 2 with the resulting cost savings benefiting PEF and its customers.

The expected cost of the second nuclear unit, Levy Unit 2, is $3,376/ kW (Summer Basis, 2007 dollars), which is significantly less than the cost of Levy Unit 1 on a dollar per-kW (summer) cost basis at $5,144/kW (2007 dollars). Similarly, the estimated fixed O&M cost for Levy Unit 2, at $36.25/kw-yr (Summer Basis, 2007 dollars), is lower than the estimated fixed O&M cost for Levy Unit 1 by $15.54/kw-yr (Summer Basis, 2007 dollars). As a result, there are substantial cost savings for PEF and its customers if Levy Unit 2 is constructed within a year to eighteen (18) months of Levy Unit 1.

Q. Where will Levy Units 1 and 2 be built?

A. The preferred site selected for Levy Units 1 and 2 consists of approximately 3,100 acres located in Levy County, Florida. This site is about ten miles north of the Company's Crystal River Energy Complex, and eight miles inland from the Gulf of Mexico, on the west coast of Florida. The two units will be located on a "Greenfield" site so site and transmission infrastructure must be constructed along with the buildings and structures necessary for the power units. The site will include low profile cooling towers, intake and discharge structures, containment buildings, auxiliary buildings, turbine buildings, diesel generators, warehouses, related site work and infrastructure including roads, transmission lines and a transmission switchyard. The Company will submit a Site Certification Application ("SCA") to the Florida Department of Environmental Protection ("DEP") for the entire site, including the site and transmission infrastructure for the units. The units, site, transmission and other, associated infrastructure, however, will occupy only approximately ten percent of the entire site and the rest will be preserved.

Q. Are the costs of site development, infrastructure, and transmission included in the cost of Levy Units 1 and 2 that you have identified?

A. All costs are included except the transmission substation and additional transmission facilities that are required at and from the Levy County site to deliver power to PEF's transmission and distribution system. Preliminary estimates have identified non-binding cost estimates for these transmission facilities in a range of approximately $2,450 M excluding AFUDC. As the transmission design and licensing efforts progress, more detailed cost estimates will be available.

Q. When does the Company plan to place the units in commercial operation?

A. The Company currently plans to place Levy Unit 1 and 2 in commercial operation in June 2016 and June 2017, respectively.

IV. THE COMPANY'S RESOURCE PLANNING PROCESS

Q. Please explain PEF's Resource Planning Process.

A. The Resource Planning process is an integrated process in which the Company seeks to optimize its supply-side options along with its demand-side options into a final, integrated optimal plan designed to deliver reliable, cost-effective power to PEF customers. Typically, we evaluate the relationship of demand and supply against the Company's reliability criteria to determine if additional capacity is needed during the planning period. With the adoption of the 2006 Florida Energy Act, additional criteria must be considered too, if nuclear generation might satisfy the Company's reliability criteria. This includes whether nuclear generation provides needed base load capacity and contributes to fuel diversity and supply reliability by reducing the Company's and Florida's dependence on fuel oil and natural gas.

Additionally, the Company must include cost-effective renewable energy sources and DSM programs in its generation resource plan optimization to determine the most cost-effective overall plan. Economics alone, however, does not establish the most cost-effective generation plan under the 2006 Florida Energy Act if nuclear generation is being considered. The Company must also account for the need to (1) improve the balance of fuel diversity, (2) reduce Florida's dependence on fuel oil and

natural gas, (3) reduce air emission compliance costs, and (4) contribute to the long-term stability and reliability of the electric grid in determining whether additional nuclear generation is the most cost-effective source of power and, thus, should be included in the Company's integrated optimal plan.

The Company's optimal plan is presented to the Commission in April of every year in the Company's annual TYSP filing and reflects the optimal plan for the Company at the end of the prior year. The Company's most recent TYSP, filed in April 2007, is included as Appendix G to the Need Determination Study, Exhibit No. ___ (JBC-1), and reflects the optimal plan for the Company at the end of December 2006.

Subsequent to the filing of the TYSP the Company updates its optimal plan to account for changes over time in the information that drives the plan. These updates typically occur two to three times a year, but may be more or less frequent depending on how rapidly the information changes that warrants updates to the plan. Since filing its April 2007 TYSP, PEF's optimal plan has changed as a result of additional information and analysis affecting, among others, PEF's load and fuel forecasts and available purchased power resources. PEF's current optimal Resource Plan with Levy Units 1 and 2 is attached as Exhibit No. ___ (JBC-2) to my testimony.

Q. What are the reliability standards the Company uses to determine the need for additional resources?

A. PEF plans its resources in a manner consistent with utility industry planning practices, and generally employs both deterministic and probabilistic reliability criteria in the

resource planning process. The Company first plans its resources to satisfy a minimum Reserve Margin criterion and, if necessary, a maximum Loss of Load Probability (LOLP) criterion. PEF has based its planning on the use of dual reliability criteria since the early 1990s, a practice that has been accepted by the FPSC. By using the Reserve Margin and LOLP planning criteria when necessary, PEF's resource portfolio is designed to have sufficient capacity available to meet customer peak demand and to provide reliable generation service under all expected load conditions.

Q. Why are reserves needed?

A. Utilities require a margin of generating capacity above the firm demands of their customers in order to provide reliable service. Periodic scheduled outages are required to perform maintenance and inspections of generating plant equipment and to refuel nuclear plants. Also, at any given time during the year, some plants will be out of service due to unanticipated equipment failures resulting in forced outages of generation units. Adequate reserves must be available to accommodate these outages and to compensate for higher than projected peak demand due to forecast uncertainty and abnormal weather. In addition, some capacity must be available for operating reserves to maintain the balance between supply and demand on a moment-to-moment basis.

Q. What is PEF's minimum planning Reserve Margin?

A. PEF's current minimum Reserve Margin threshold is twenty (20) percent. The Commission approved a joint stipulation from the investor-owned utilities in

peninsular Florida establishing a 20 percent Reserve Margin in Order No. PSC-99-2507-S-EU. PEF, Florida Power & Light Company ("FPL"), and Tampa Electric Company ("TECO") agreed to increase minimum planning Reserve Margin levels to at least 20 percent by the summer of 2004.

Q. How does the Company's Resource Planning process begin?

A. The Resource Planning process begins with the development of a forecast of system load growth for the next ten years. This forecast draws on the collection of certain input data, such as population growth, fuel prices, interest and inflation rates, and the development of economic and demographic assumptions that impact future energy sales and customer demand.

Q. Briefly describe PEF's system demand and energy forecasts.

A. By the summers of 2016 and 2017, net firm demand is projected to grow to 10,961 MW and 11,150 MW, respectively, followed by a net firm demand of 12,011 MW and 12,242 MW net firm demand in the winters of 2017 and 2018, respectively. The net energy for load is projected to grow to 59,448 GWh and 60,836 GWh in the same time periods. What we are seeing is an expected growth of over twenty (20) percent in the demand for electricity in our service area over the next ten (10) years. These demand and energy forecasts reflect the impacts of the recent changes in the housing and construction markets in Florida and the current downturn in the economy as a whole on the current and future growth in customers and customer energy use. That said, however, both customer growth and load growth is still expected over the next decade

and beyond. The projection in our detailed analyses of long-term customer and load growth is not unique or unexpected given current market conditions; following both the downturns in the economy in the early 90's and after 9/11 our analyses showed and we in fact experienced continued growth in the demand for electricity. Our current analyses similarly show that the current economic downturn is cyclical and that over the long-term continued, albeit lower, customer growth and load growth is expected and we must be prepared to meet it. The demand and energy forecasts, and the methodology used to develop them, are discussed in detail in Section III of the Need Determination Study.

Q. What experience suggests that customer and load growth will continue?

A. Florida is currently the fourth most populous state, with a population of more than 17 million people. Florida will continue to add to the state's population; it is adding over 1,000 new residents a day. PEF has experienced this growth too, with more than 600,000 homes and businesses added to its service areas in the past twenty years. In fact, PEF's customer base has grown by 157 percent since 1975, from 622,000 customers to about 1.7 million today. While PEF expects this growth to slow down, Florida is still expanding, and 30,000 to 40,000 new homes and businesses have been added to PEF's service area each year, which is the equivalent size of a medium-sized city. Florida is still expected to be an attractive place for people to establish homes and businesses.

These homes and businesses are using more electricity too. Florida's per-capita electricity use currently ranks third in the country. PEF has experienced this

increase in electricity usage too, since 1975 per capita electricity use in PEF's service area has grown more than 53 percent. Even with more energy efficient appliances, equipment, and technology, energy use is still expected to grow.

Among the reasons for this growth, are the size of homes, the prevalence of air conditioning, and more electronic equipment and appliances in homes and businesses. The average new home in Florida is 54 percent larger today than it was in 1970 and 12 percent larger than it was even in 1990. Florida's subtropical environment drives air conditioning use, which is now nearly universal in Florida, when only two-thirds of homes in the south had air conditioning in 1980. The expanding number of electronic appliances and equipment in homes and businesses include computers, electronic games, and plasma-screen TVs, among other devices. The prevalence of plasma screen TVs is noteworthy because they consume more electricity than a refrigerator, which historically has been the third largest source of electrical use in a typical home. All of these factors reflect lifestyle choices by Florida residents that signify continuing growth in electricity use in their homes and businesses.

Q. Does the Company take steps to encourage energy conservation and reduce energy demand?

A. Yes, it does. PEF has long undertaken such steps through its demand-side management ("DSM") programs, which are reflected in the Company's DSM Plan.

Q. How are demand-side management programs quantified and incorporated into the Company's planning process?

A. The Commission holds regular DSM Goals and DSM Plan proceedings (most recently Docket No. 060647-EG for PEF), to assess the projected cost, performance, viability, and cost-effectiveness of DSM programs to meet utility specific DSM goals. As a result, PEF conducted a thorough analysis of a wide range of dispatchable and non-dispatchable DSM program options, and the Company identified a set of DSM programs that were cost-effective and that met Commission-established goals. PEF proposed seven residential programs, seven commercial and industrial programs, a qualifying facilities program, and a research and development program, for a total of sixteen (16) DSM programs. Of these 16 DSM programs, two were new and all the proposed programs included thirty-nine (39) new measures. The PSC approved PEF's DSM plan in Consummating Order No. PSC-07-0017-CO-EG making Order No. PSC-06-1018-TRF-EG effective and final.

PEF's current approved DSM Plan is comprised of sixteen (16) programs with over one hundred (100) individual measures and it includes new conservation goals over the ten-year period. Over the ten year period, the proposed conservation goals are generally higher than the existing set of goals were, reflecting even more savings from demand-side resources. All other things being equal, the new goals cause a decrease in PEF's firm winter and summer peak demand. PEF expects to reduce the need for an additional 527 winter MW ("WMW") of peak demand load from direct load control and 418 WMW from energy efficiency, for a total load reduction of 945 WMW from the additional programs. Together with the expected load reduction from PEF's existing DSM programs, the expanded DSM plan will provide an expected reduction in load of over 2,400 MW. Despite this decrease in peak demand, however,

Levy Units 1 and 2 are still needed in the 2016 to 2019 timeframe to satisfy PEF's Reserve Margin and meet the Company's reliability need. The Company's historical DSM programs, current and planned DSM programs, and the limits of those programs are explained in more detail in the testimony of John Masiello.

Q. Have PEF's demand-side management programs been successful in reducing demand?

A. Yes. PEF's DSM programs have met or exceeded the Commission-established DSM goals and PEF anticipates achieving all of the future year goals under the current plan. Since enactment of the Florida Energy Efficiency and Conservation Act ("FEECA"), PEF's DSM Plans have allowed the Company to meet or exceed the Commission's DSM goals for PEF every year. As a result, since 1981 when FEECA went into effect, PEF has been a leader in DSM and implementing energy efficiency programs and, in fact, PEF has one of the most robust DSM and energy efficiency programs in the country. PEF is ranked third in the nation for load management peak demand reduction with a reduction of 17 percent of peak demand, and PEF is ranked fourth in the nation for energy efficiency megawatt-hour ("MWh") saved for utilities with 1.5 million customers or more, based on 2006 data from the Department of Energy. Customers have saved 10 billion kilowatt hours and over 1,500 MW, which is equivalent to avoiding three 500 MW power plants. Further, PEF's DSM programs have avoided significant emissions that would otherwise have been released into the air to produce power, including over 7,500,000 tons of carbon dioxide (CO_2), which is equivalent to removing 1,900,000 cars from Florida roads each year. Other significant

emissions, such as sulfur dioxide (SO_2), nitrogen oxide (NOx), and mercury, have also been avoided as a result of PEF's DSM programs.

PEF will continue to pursue the research and development of cost-effective additional or modified DSM programs to reduce and control the growth rate of energy consumption, increase the conservation of resources, and increase the efficiency of the electric system. Such programs, however, cannot offset the need for additional generation units to meet the demands of PEF's customers for electrical power.

Q. Does the Company supply all the electric power its customers demand from its own generation resources?

A. No. PEF purchases or plans to purchase firm capacity and energy under purchased power contracts from other electrical power generators, including cogeneration and renewable fuel resource facilities, when it is more cost-effective to do so. PEF's resource plan takes into account its future supply from these resources as well as the future supply from its own existing and committed generating units that will be in service during the period at issue.

Q. How are new supply-side alternatives identified?

A. If a need for additional capacity during the planning period is identified, PEF examines alternative generation expansion scenarios. Supply-side resources are screened to determine those that are the most cost-effective. The Company begins with a wide range of options, identified from various industry sources and PEF's experience, and pre-screens those that do not warrant more detailed cost-effectiveness

analysis. The screening criteria include costs, fuel sources and availability, technological and commercial maturity, and overall resource feasibility within the Company's system.

Generation alternatives that pass the initial screening are considered viable capacity alternatives and are included in the next step of the planning process. That step involves an economic evaluation of generation alternatives in a computer model called Strategist. The primary output of Strategist is a CPVRR comparison of the viable resource combinations that will satisfy PEF's reliability requirements. The most cost-effective supply-side resource (or combinations), are typically evaluated based on cost performance over both the study period (30 years) and the planning period (10 years). Generally, the generation plan with the lowest CPVRR over the study period is chosen as the optimal generation plan.

In selecting Levy Units 1 and 2 as the supply-side alternatives to meet the Company's capacity need beginning in the 2016 to 2019 timeframe, PEF examined, evaluated, and ultimately rejected other conventional, advanced, and renewable generation resources as potential capacity addition alternatives in this time period. These potential supply-side alternatives are described more fully in PEF's Need Study at Exhibit No. ___ (JBC-1) to my testimony.

The Company narrowed its options to four viable generation options, natural gas-fired combined cycle generation, pulverized coal or atmospheric fluidized bed combustion ("AFBC") coal generation, coal gasification generation, and advanced light water nuclear generation. The potential coal, coal gasification, and nuclear supply-side generation units were initially evaluated against an all natural gas

generation reference case. Natural gas generation was used as the default supply-side generation alternative for several reasons. First, relative to the other generation alternatives, natural gas-fired generation has lower capital costs. Also, the combined-cycle generation technology is well-developed and the Company has extensive experience with it. Finally, natural gas-fired generation offered lower sulfur dioxide (SO_2), nitrogen oxide (NOx), mercury, and GHG emissions than the coal and coal gasification generation alternatives studied.

The nuclear generation technology proved more cost-effective than pulverized coal and coal gasification against the all natural gas generation case in preliminary evaluations. Additionally, because of the (1) significant, potential future environmental costs associated with pulverized coal and coal gasification resulting from GHG and possible carbon capture requirements or carbon abatement costs, and (2) recent regulatory and utility decisions to forego pulverized coal and coal gasification generation options in Florida, the nuclear generation option appeared to be the more viable generation alternative to evaluate further against an all natural gas generation scenario. As a result, advanced light water nuclear generation technology was selected for further economic evaluation against an all natural gas generation reference case.

V. LEVY UNITS 1 AND 2 AS PART OF THE OPTIMAL PLAN

Q. Please explain how Levy Units 1 and 2 were identified in the Company's Resource Planning efforts.

A. Through the Resource Planning process I described, we develop the TYSPs and updates to the TYSP. The April 2007 TYSP first identified a reliability need in 2016 that was met by a nuclear power plant, which became Levy Unit 1, as part of the Company's optimal plan. At that time, and through continued review and analysis of the optimal plan, a subsequent reliability need was identified following the expected commercial operation of Levy Unit 1 that was satisfied by an additional nuclear power plant, Levy Unit 2, as part of the Company's optimal plan. This determination was made after conducting a more detailed economic screening of the advanced light water nuclear generation alternatives represented by Levy Units 1 and 2 against an all natural gas generation reference case using the Strategist optimization program. The Strategist model was used to assess the Company's seasonal Reserve Margins when selected generation resources were added to meet the prescribed minimum Reserve Margin requirements. The ultimate decision to add the Levy Units 1 and 2 advanced light water nuclear power generation was driven by the Company's reliability need for both nuclear units, the favorable economics for the second nuclear unit addition within a year to eighteen months of the first unit, and the fuel diversity, technological benefits, and environmental benefits from construction and operation of two nuclear units.

The Company's current optimal plan also calls for additional supply side generation resources to meet the Company's reliability needs by maintaining the Company's 20 percent Reserve Margin commitment prior to the expected commercial operation of Levy Unit 1 in 2016. These include the Bartow repowering project in 2009, the additional uprates at PEF's existing nuclear unit, Crystal River Unit 3

("CR3") in 2009 and 2011, an unsited combined cycle ("CC") unit in 2013, and purchased power (primarily from peaking power and renewable generation resources). These additions are identified in the Company's optimal Resource Plan attached as Exhibit No. ___ (JBC-2) to my testimony. This plan is a slight variation of the expansion plan published in the Company's 2007 Ten-Year Site Plan filed with the PSC on April 1, 2007. The current optimal expansion plan reflects additional information and analysis since the Ten-Year Site Plan was prepared, as I have generally described. The additional generation resources, together with Levy Units 1 and 2 in the current optimal expansion plan, however, are consistent with and the result of the Company's Resource Planning process.

Q. If other generation resources precede Levy Units 1 and 2 in the Company's optimal plan, why is the Company filing a petition for determination of need for Levy Units 1 and 2?

A. To preserve the ability to meet the Company's reliability need in the 2016 to 2019 timeframe with nuclear generation, PEF must file its petition for determination of need at this time. The development of nuclear power plants as a generation resource requires substantial time for the location, acquisition, and development of an appropriate site, engineering and design of the necessary infrastructure and nuclear plant components, procurement of necessary equipment and materials, regulatory licensing and permits for the plants and associated generation and transmission facilities, in addition to the significant time needed for actual construction of the nuclear unit.

Long lead times are necessary to place orders to "get in the queue" for major components of the nuclear generation plant and related supporting structures. PEF must place orders for many of those components at this time to allow for sufficient time for ordering, design, engineering, and construction to ensure that the first unit will achieve commercial operation in 2016.

Additionally, substantial time is required for the necessary regulatory review for a nuclear power plant at the federal level (the NRC) and state level (PSC, DEP, and local authorities). In fact, the Company has already identified the site, commenced work to obtain the necessary approvals to develop the property, initially selected for further evaluation a design of the nuclear generation plants, and taken many other steps, all to ensure that the Company can complete Levy Units 1 and 2 in time for commercial operation in the summer of 2016 and the summer of 2017, respectively.

The process to obtain regulatory approval, design, engineer, and construct a nuclear power plant is estimated to take at least ten (10) years. The same process for a combined cycle generation unit, on the other hand, takes about three to four years. Commercial operation of a combustion turbine ("CT") peaking unit can occur one to one-half years after the process of developing a CT unit begins. As a result, PEF must commence the process to obtain approval of the need for Levy Units 1 and 2 now, even though other generation units will be built under the Company's optimal Resource Plan before the nuclear generation units.

Q. Why does PEF need additional new generation in the summers of 2016 and 2017?

A. PEF maintains its Reserve Margin for both its summer and winter peak demands to ensure reliable electric service to its customers. Historically, PEF has been a winter peaking utility, meaning the Company's winter peak season has typically triggered the need for additional resources. This occurs because there typically are one or two abnormally cold days or other periods of time in the winter relative to the typical Florida winter when customer demand for energy exceeds any peak demand on any summer day, even though there typically are many more days of high demand in the summer months. Over time, however, PEF has observed the peak move to the summer period of time, which is what most people would expect anyway, since Florida is a subtropical environment. This is what is occurring in the summer of 2016. PEF needs additional generating capacity by the summer of 2016 to maintain system reliability and integrity, and to meet PEF's commitment to maintain a 20 percent Reserve Margin. Levy Units 1 and 2 will enable PEF to meet this reliability need, and the reliability needs thereafter, and they will allow PEF to continue to provide and increase adequate electrical generation from nuclear fuel for customers at a reasonable cost relative to fossil fuel generation costs.

Q. What impact will the addition of Levy Units 1 and 2 have upon PEF's Reserve Margin and its ability to provide reliable service to customers?

A. By the summer of 2016, PEF's projected Reserve Margin will be 15.4 percent without the addition of any new supply-side generation, signifying the need for additional generation resources to meet the Company's minimum 20 percent Reserve Margin requirement. If Levy Unit 1 is added in the summer of 2016 the Reserve Margin will

be 25.3 percent. PEF clearly has a reliability need for Levy Unit 1 in the summer of 2016. This is visually demonstrated in the table in Exhibit No. ___ (JBC-3) to my testimony, which provides the Company's Summer Demand and Reserves with and without Levy Unit 1.

The addition of Levy Unit 2 in the summer of 2017 does result in Reserve Margins above the minimum 20 percent Reserve Margin criterion that summer and for a few subsequent years. Both Levy Units 1 and 2 are still needed, however, to allow PEF to satisfy its commitment to maintain a minimum 20 percent Reserve Margin in the period 2016 to 2019 and beyond.

Q. Why is there a reliability need for both Levy Units 1 and 2 in the 2016 to 2019 time period?

A. There are a number of reasons why there is a reliability need for both nuclear units in this time period. To begin with, if Levy Unit 1 is added in the summer of 2016, but Levy Unit 2 is not added the next summer as planned, PEF's Reserve Margin falls below the 20 percent Reserve Margin criterion at 19.1 percent by the summer of 2019, just two years later, and the Reserve Margin further falls to just 17.2 percent in the summer of 2020, only three years after Levy Unit 2 is planned for commercial operation. This is visually demonstrated in the table in Exhibit No. ___ (JBC-4) to my testimony, which shows the Summer Demand and Reserves with Levy Unit 1 but without Levy Unit 2. Faced with a need for additional resources within this short window of time, moving forward with Levy Unit 2 in the summer of 2017 is certainly reasonable. In fact, given the length of time necessary to plan, site, obtain regulatory

approval for, and design and build a nuclear unit, proceeding with both Levy Units 1 and 2 at this time for commercial operation in the summers of 2016 and 2017 is necessary to reasonably meet customer reliability needs in the time period from 2016 to 2019 and beyond with nuclear power generation.

Second, there is a reliability need for both nuclear units because the Company's Reserve Margin includes projected capacity resources from future renewable fuel facilities under recently executed purchase power agreements. These facilities have not been built and they rely on unproven technologies or fuel sources, such as waste-wood biomass and biomass crops, which have not yet been shown to support consistent, reliable capacity and energy production. The types of factors that can adversely affect the development of these unique renewable fuel facilities are described further in the testimony of Robert Niekum, but they include available financing and financing at a favorable rate, available land and land that is available at an economic price, and weather impacts on biomass fuel production, among others. As a result, these renewable generation facilities might not be built, their construction might be delayed, or they may fail to achieve reliable commercial operation at all or at the expected capacity when that capacity is needed. If that occurs over 250 MW is at risk of not being available when needed, and the Company's need for additional capacity resources will increase and its Reserve Margins will be lower than currently projected.

Third, the additional capacity from the second nuclear unit will provide PEF greater assurance that the minimum 20 percent Reserve Margin criterion will be met in the event that peak loads are higher than currently anticipated. Levy Unit 1 will be

operational over eight years from now and Levy Unit 2 will be operational over nine years from this date under the current plan. Over such an extended period of time load growth may exceed projections. It has happened before in PEF's experience, even over shorter time periods than eight or nine years. With Levy Unit 2 PEF will have the capability it needs under changing circumstances over time affecting load growth and Reserve Margins to meet customer energy needs.

Fourth, the addition of Levy Unit 2 provides PEF the flexibility to reduce or replace the use of potentially less economic resources. Nuclear fuel historically is more stable in price and cheaper than fossil fuels. This relationship between nuclear and fossil fuels is expected to continue, as explained in the testimony of Sasha Weintraub and John Siphers. With an eight to nine year period required to bring the nuclear units on line, PEF and its customers face growing uncertainty surrounding the cost of using carbon-based fossil fuels. Having an additional nuclear unit in commercial operation in 2017 and beyond provides PEF with greater flexibility in meeting customer demands for electrical power with nuclear generation as an alternative to fossil fuel generation. For all of these reasons, we believe there is a reliability need for both Levy Unit 1 and 2 in the summer of 2016 and 2017, respectively, when they are currently planned for commercial operation.

Q. Is it unusual to experience increases in the Reserve Margin above the 20 percent commitment with the addition of generation resources to PEF's system?

A. No. PEF rarely maintains an exact 20 percent Reserve Margin at all times. Rather, some additional capacity above the 20 percent Reserve Margin is typical when PEF

has determined that an additional generation resource is necessary to maintain its 20 percent Reserve Margin commitment. It is, therefore, not unusual for a utility to grow into the capacity of a large generating unit. Economics generally demand that a utility build a larger generation unit than immediately required to meet a capacity need to provide customers the best value for their capital investment.

Indeed, once PEF has identified a capacity need, PEF will select the most cost effective resource by taking into account all factors and circumstances to meet that reliability need. One of those factors is the most economic size of the generation unit to meet the Company's reliability need. Economies of scale generally reduce the cost of a new generation unit on a $/kW basis the larger the unit is. PEF will look at the $/kW cost to meet the Company's reliability need, and as a result, the most economic size unit to meet that need may not be a generation unit that is equivalent to meeting the 20 percent Reserve Margin commitment. Instead, PEF and its customers will be better off at times to build larger generation units to meet the Company's reliability need even though the result is that the 20 percent Reserve Margin is exceeded when the unit comes on line or even for a period of time thereafter.

Q. Why is there a need for nuclear generation units, instead of natural gas combined cycle units for example, to meet PEF's reliability needs in the 2016 to 2019 time frame and beyond?

A. Given the information available today, nuclear generation resources appear to be the best resources to meet PEF's reliability need in 2016 to 2019 and beyond, based on the Company's analysis of the economic and socio-economic benefits nuclear generation

provides. This analysis is required by the Florida Legislature under the amended need determination provision. Under this analysis, these nuclear generation units provide fuel diversity and supply reliability benefits, fuel independence benefits, and environmental emission benefits. When these factors are considered, Levy Units 1 and 2 show significant advantages over the Company's other options to meet its need in 2016 to 2019 and beyond. In addition, these nuclear units will likely provide PEF and its customers economic benefits from (1) cost savings from constructing both Levy Unit 1 and 2 within a year to eighteen months of each other and (2) the addition of new, advanced nuclear technology with its fuel savings benefits to PEF's generation portfolio.

Q. What are the cost savings for PEF and its customers from the construction of both Levy Units 1 and 2 in the planned time frame?

A. With the current selection of the Westinghouse AP1000 reactor design, PEF has the opportunity to take advantage of cost savings resulting from economies of scale and engineering and construction efficiencies from building successive nuclear units at the same site, which effectively lower the projected cost of Levy Unit 2. These engineering and construction efficiencies or economies of scale may include concurrent engineering and manufacturing of large, key components of the nuclear reactor and related support structures. If long lead time equipment for both units can be procured concurrently, these economies of scale in engineering and manufacturing can be achieved. The back-to-back construction of Levy Units 1 and 2 also allows for the continuous mobilization of engineers and construction personnel for on-site

engineering and construction of both nuclear units. PEF will therefore avoid de-mobilization and re-mobilization costs if the second nuclear unit is built consecutively with the first unit. PEF will also achieve cost savings from the continuous use of an experienced, efficient work force on both units. These are a few examples of the engineering and construction efficiencies and economies of scale achieved if Levy Unit 2 is constructed within a year to eighteen months of Levy Unit 1. Further explanation of these benefits is provided by Mr. Daniel Roderick in his testimony.

The economies of scale in procurement, engineering, manufacture, and construction can be achieved if the second unit is constructed within twelve (12) to eighteen (18) months of the first unit. If commercial operation of Levy Unit 2 is delayed significantly beyond the summer of 2017, the projected cost savings benefits from the successive construction and commercial operation of Levy Units 1 and 2 may be lost.

The resulting economic effect is a lower dollar per-kW cost for Levy Unit 2 than Levy Unit 1. Levy Unit 2 is expected to cost $3,376/kW (Summer Basis, 2007 dollars), which is substantially lower than the cost of Levy Unit 1 on a per-kW cost (Summer Basis) at $5,144/kW (2007 dollars). Similarly, the fixed O&M cost for Levy Unit 2 is $36.25/kW-yr (Summer Basis, 2007 dollars), which is $15.54/kW-yr (2007 dollars) lower than the fixed O&M cost for Levy Unit 1. These cost savings from the construction of Levy Unit 2 within a year to eighteen months of Levy Unit 1 represent substantial economic benefits to PEF and its customers.

Q. What are the benefits of adding the nuclear generation technology of Levy Units 1 and 2 to PEF's generation system?

A. When they achieve commercial operation, Levy Units 1 and 2 will add additional base load capacity and energy to PEF's generation portfolio with state-of-the-art nuclear generation technology. PEF's existing base load nuclear generation unit, Crystal River Unit 3 ("CR3"), is a second generation nuclear power plant. CR3 has served customers well and will continue to serve customers well for years to come, but CR3 was built thirty years ago, and it represents aging nuclear generation technology. PEF's other existing base load generation plants, its Crystal River coal plants, were either built before CR3 or over two decades ago, and therefore they also represent aging coal-fuel, base load generation technology. Generally speaking too, as generation units age, they require more maintenance and thus more outages and higher maintenance costs than newer generation units.

Advancements in generation technology provide opportunities for greater efficiency in operation and lower maintenance cost. This is certainly true for the Westinghouse AP 1000 design which uses passive safety system designs and engineering simplicity that simply was not available in prior nuclear power plant designs. This means relatively lower construction and operation costs for Levy Units 1 and 2 than the construction and operation of a nuclear power plant using designs available in nuclear plants that are currently operating. The more efficient design for the Westinghouse AP 1000 nuclear reactors, for example, will also mean greater reliability in operation than what is expected from base load nuclear power plants operating today.

Additional advanced base load generation technology is important to PEF because the vintage of PEF's current base load generation runs from over twenty to over forty years old today. By the time Levy Units 1 and 2 are planned to come on-line in 2016 and 2017, the vintage of PEF's existing base load generation units will be nearly forty to over fifty years old. Levy Units 1 and 2 offer PEF and its customers the opportunity to add new base load generation with the most advanced, efficient nuclear generation technology available today. The addition of Levy Units 1 and 2 will change the vintage of PEF's base load generation for the better, providing PEF and its customers with more reliable, efficient, and less costly base load generation to maintain and operate.

Q. You mentioned that there will be fuel savings benefits too, can you explain how Levy Units 1 and 2 will provide fuel savings benefits to PEF's customers?

A. Yes. Nuclear generation uses the lowest cost fuel source available to the Company for supply-side generation. Compared to fossil fuels (natural gas and oil), the enriched uranium that is processed for use in nuclear production is substantially less expensive on a $/MWh basis. Nuclear fuel is historically more stable in price than fossil fuels too. The relative differential between nuclear fuel and natural gas and oil is demonstrated in PEF's fuel forecasts for these fuels in Exhibit No. ___ (JBC-5) and explained in the testimony of Mr. Sasha Weintraub. As a result, when PEF adds Levy Units 1 and 2 to its system to meet its reliability need in 2016 to 2019, PEF will be adding energy generation output at a lower $/MWh cost relative to natural gas and oil generation.

This lower cost energy will displace higher cost energy on PEF's system. As base load generation units, Levy Units 1 and 2 will run essentially all the time, except when they are off-line for re-fueling and maintenance or forced outages. The expected capacity factor in fact is over 90 percent for each nuclear generation unit. During off-peak hours, or even during peak hours when not all generation resources will be used to provide energy to meet demand, Levy Units 1 and 2 will be operating and producing energy to meet demand. This is visually demonstrated by Exhibit No. ___ (JBC-6), which shows PEF's 2018 daily system load forecast with Levy Units 1 and 2. As a result, Levy Units 1 and 2 will displace higher cost fossil fuel generation or purchased power that would otherwise have been used to meet energy demand.

The fuel component of customer bills will be lower because of this displacement of higher cost fossil fuel energy generation by nuclear energy generation. In fact, when comparing the projected system fuel costs for the reference case with Levy Units 1 and 2 versus the all natural gas reference case alone, the fuel savings are $930 million in 2018, the first year of full operation of both nuclear units. Fuel savings are projected annually for the Levy Units over the expected sixty-year operational lives of both units.

Q. You testified that Levy Units 1 and 2 will provide PEF and its customers fuel diversity and supply reliability benefits. What do you mean?

A. By fuel diversity I am referring to the ability of the Company to reduce the impacts of price escalations in a certain fuel resource by having available on the system additional generation or purchased power resources that use other fuels to produce

energy. PEF has a mix of fuel resources available for power generation to meet net energy load on the system. These fuel resources include oil, natural gas, coal, renewable fuels, and nuclear. PEF's current fuel mix to meet energy load is shown in Exhibit No. ___ (JBC-7) to my testimony.

Fossil fuels, in particular natural gas and oil, historically are much more volatile than nuclear fuel. More recently, in the past few years, natural gas has been particularly volatile. Rapid escalations can occur in natural gas and oil used for energy generation that can correspondingly cause a rapid escalation in the fuel costs that customers pay for energy. In Florida, the volatility in natural gas prices is further influenced by the fact that Florida is a peninsula and natural gas transportation into the State is constrained. When the natural gas commodity price increases, these natural and physical transportation constraints cause a further escalation in the natural gas price to Florida electric utilities. Relative to natural gas and oil, however, nuclear fuel is more stable in price.

Adding additional nuclear fuel generation to meet net energy for load therefore increases PEF's fuel diversity. Without Levy Units 1 and 2, natural gas and oil will comprise 61 percent of PEF's energy mix to meet net energy load on its system by 2018 and nuclear will account for only 12 percent of the energy generation to meet load. Indeed, without Levy Units 1 and 2, by 2018 fossil fuels will account for 85 percent of the energy generated on PEF's system. With Levy Units 1 and 2, however, nuclear generation will contribute 38 percent of the total system energy to meet load in 2018. This is demonstrated by Exhibit No. ___ (JBC-8), which shows the fuel resources to meet net energy load on PEF's system in 2018 with and without Levy

Units 1 and 2. As a result of the addition of Levy Units 1and 2 to PEF's system, PEF's reliance on natural gas (and other fossil fuel) generation to meet load will be reduced, providing greater fuel diversity to PEF and its customers.

Adding additional nuclear generation to PEF's generation system will also improve the Company's fuel supply reliability. Fuel supply reliability refers to the ability of the utility to depend on receiving fuel when it is needed to meet customer demand for energy. Florida is not only a peninsula; Florida has no natural fossil fuel resources of its own. PEF must therefore rely on the supply of fossil fuels for energy generation from sources outside the State, including sources from foreign countries. This fuel supply is subject to disruptions, especially during extreme weather events or natural disasters. The hurricane seasons of 2004 and 2005 demonstrated the vulnerability of this supply for PEF and other Florida utilities when natural gas and coal supplies were temporarily precluded or disrupted by weather conditions and resulting damage caused by the storms. These supply disruptions naturally had an impact on fuel prices, causing the price of natural gas, for example, to increase dramatically.

Nuclear fuel does not face the same supply disruptions as fossil fuels. Nuclear fuel is added to the units during refueling outages, typically once every eighteen (18) to twenty-four (24) months, and therefore an adequate fuel supply is available for an extended period of time. Further, the fuel supply for a nuclear unit is not subject to the same supply disruptions due to adverse weather conditions. As a result, the addition of additional nuclear generation, like Levy Units 1 and 2, reduces PEF's dependence on fuels that have a less reliable supply capability.. The reliability of PEF's fuel

supply will therefore increase with the addition of Levy Units 1 and 2 to PEF's system.

Q. What are the environmental benefits from adding Levy Units 1 and 2 to PEF's system?

A. Nuclear generation is a clean source of electric capacity and energy. The generation of electric energy from nuclear fuel produces no SO_2, NOx, GHG, or other emissions that have an adverse impact on the environment. Fossil fuel and renewable fuel generation have some or all of these emissions.

Currently, environmental requirements like the Environmental Protection Agency ("EPA") and DEP Clean Air Interstate Rule ("CAIR") impose significant emission requirements, and therefore substantial costs, on fossil fuel generation. The proposed Levy Units 1 and 2 will not be subject to the EPA and DEP CAIR rules and other current and future regulations of fossil fuel and renewable fuel emissions. Levy Units 1 and 2, therefore, will not be subject to the substantial costs that must be incurred to comply with such environmental regulations. They will also provide cleaner air for Florida compared to other commercially feasible, fossil fuel generation alternatives. Additionally, Levy Units 1 and 2 will assist the Company in complying with existing environmental regulations by providing an alternative clean source of generation. This is discussed more fully in the testimony of Michael Kennedy.

Levy Units 1 and 2 will also assist the Company in preparing to meet more stringent environmental regulations in the future. Because of global warming concerns, the potential regulation of GHG currently is a matter of much political,

legislative, regulatory, and scientific discussion and debate. Some form of regulation of GHG seems inevitable. Because nuclear generation produces no GHG emissions Levy Units 1 and 2 are reasonable generation alternatives to meet customer energy needs in the event of GHG regulations.

VIII. MOST COST-EFFECTIVE ALTERNATIVE

Q. Are Levy Units 1 and 2 the Company's most cost-effective alternative for meeting its reliability need in the period 2016 to 2019?

A. Yes, they are, when the legislative criteria in Section 403.519(4)(b)3, Florida Statutes, are fully considered and applied in the evaluation of credible generation alternatives. As I have described, the Company conducted a deliberate, detailed evaluation of various other supply-side alternatives as part of its Resource Planning process before identifying Levy Units 1 and 2 as the generating alternatives to meet the Company's reliability need in the period 2016 to 2019 and beyond. That evaluation applied the Florida Legislature's directive in Section 403.519(4)(b)3 that the utility must consider whether the nuclear power plant will "provide the most cost-effective source of power, taking into account the need to improve the balance of fuel diversity, reduce Florida's dependence on fuel oil and natural gas, reduce air emission compliance costs, and contribute to the long-term stability and reliability of the electric grid." As a result of that evaluation, the Company determined that Levy Units 1 and 2 are the most cost-effective generation alternative available to meet the Company's need in the period 2016 to 2019 because they will improve the Company's fuel diversity, substantially reduce the Company's and Florida's reliance on fossil fuels, help insulate the

Company and its customers from costs resulting from existing and potential environmental regulations including GHG regulations, and improve the long-term grid reliability with new vintage base load generation with advanced technology.

Q. Are fuel diversity and fuel independence important factors in determining whether Levy Units 1 and 2 are the most cost-effective source of power?

A. Yes, they are. There is a cost to customers to choose one generation alternative over another, beyond the direct capital and fuel costs of the alternatives, as a result of altering the fuel mix to meet customer energy demand. Not only do different fuels have different commodity prices but they also have different means of supply, different end-use markets, different geographic commodity sources, and a host of other factors that affect their relative prices. These differences cause some fuel sources --- such as natural gas and oil --- to be more volatile in price than others (like nuclear fuel). As a result, increased reliance on certain fuels like natural gas and oil to generate energy to meet demand means increased price volatility.

Price volatility is important to customers because the fuel cost is passed through directly to the customer. Customers therefore experience changes in fuel prices immediately on their bills. Customers generally prefer stable energy prices. They want their bills to be predictable. As a result, PEF attempts to maintain fuel diversity among its generation resources to minimize to the extent possible sudden and erratic shifts in fuel prices.

Recent experience has shown, however, an increase in the price volatility of natural gas and oil fuel prices. In the last few years these fuels have been subject to

more and wider ranging price changes than was the case in the 1990's. This price volatility is expected to continue during short-term periods in the future, even as the price of these fossil fuels levels off over time in PEF's long-term forecasts. Adding additional nuclear generation to the fuel mix on PEF's system will temper the effects of these volatile changes in fossil fuel prices for the benefit of PEF's customers.

The significance of the impact nuclear generation will have on future volatility in fossil fuel prices is readily apparent when one compares the Company's existing system energy mix, see Exhibit No. ___ (JBC-7), with its expected system energy mix in 2018 without Levy Units 1 and 2, see Exhibit No. ___ (JBC-8). Without Levy Units 1 and 2, the Company will rely on fossil fuels for 85 percent of its energy in 2018, which is equivalent to its reliance on fossil fuels today (at 83 percent), and therefore, nothing will change customer exposure to fossil fuel price volatility for the next ten years or a decade after that, because it will likely take another ten years to develop additional nuclear generation. If Levy Units 1 and 2 are added to PEF's generation system, however, nuclear fuels will account for almost 40 percent of all energy generation in 2018, see the chart in Exhibit No. ___ (JBC-8), which shows PEF's system energy mix in 2018 with Levy Units 1 and 2.

The addition of nuclear generation is significant too when one considers that foreign suppliers will account for a growing percentage of the Company's future oil and natural gas supplies. These oil and natural gas supplies are predominantly located in the Middle East and Eurasia. These sources along with Africa, for example, will account for the growing use of liquidified natural gas ("LNG") to meet domestic natural gas demand in the future. The oil and gas supplies in these areas are, however,

largely owned or controlled by the state and, therefore, supplies and thus prices are subject not only to market forces but also foreign governmental objectives and political instability. These factors increase the uncertainty and volatility surrounding future oil and gas prices. Adding additional nuclear generation to PEF's system in 2016 and 2017 increases the Company's future fuel independence by reducing its reliance on foreign fossil fuel sources.

Q. You mentioned fuel supply reliability too, how does that affect the Company's determination of what is the most cost-effective alternative?

A. As I have explained, Florida is a peninsula with no natural fossil fuel resources. All fossil fuels used for energy generation must come from geographic regions outside Florida. Pipelines (land and water) bring natural gas to PEF and rail, barge, and/or trucks bring coal and oil to PEF on a regular basis. Natural gas and oil production and refinery resources are located near, on, or in the Gulf of Mexico. Florida and the Gulf of Mexico are subject to extreme weather conditions, including hurricanes. During and following such extreme weather conditions, natural gas, oil, and coal supplies can be limited or stopped altogether as natural gas production and oil refineries are shut down or damaged and/or pipelines are shut down. These events have an adverse effect on the price of fossil fuels, causing increased prices.

This phenomenon was recently experienced during and following the 2004 and 2005 hurricane seasons. At times, fossil fuel supplies were restricted or stopped completely and PEF (and other Florida utilities) experienced increased fossil fuel prices as a result. Indeed, the 2006 Florida Energy Plan commented on the severe fuel

supply disruptions caused by the adverse weather during these hurricane seasons because production platforms in the Gulf of Mexico were shutting down, refining systems were going offline for months, and pipelines were rendered inoperable. Additional nuclear generation offsets the economic impacts of adverse weather conditions (or any other supply disruptions) because nuclear fuel is not subject to the same type of supply disruptions.

Q. Are the potential economic impacts from increased fuel diversity and supply reliability well recognized?

A. Yes. Both Congress, in passing EPACT, and the Florida Legislature, in passing the 2006 Florida Renewable Energy Technologies and Energy Efficiency Act, recognized that increased fuel diversity and fuel supply reliability had a positive economic impact by reducing dependence on foreign fossil fuels and minimizing volatile fuel costs. Similarly, executive orders at the federal and state level have recognized the importance of fuel diversity and supply reliability to the federal and state economies. As a result of this legislative and executive attention to fuel diversity and supply reliability issues the Commission and Florida electric utilities were directed to explicitly consider fuel diversity and reliability in determining the need for a proposed electrical power plant and to consider fuel diversity and reliability in determining the cost-effectiveness of nuclear generation as a generation alternative to meet that need.

Q. You also said that additional nuclear generation insulates the Company and its customers from environmental costs; can you explain what you mean?

A. Yes. As I have also explained, nuclear generation causes none of the environmental emissions that are a concern with fossil fuel generation, such as SO_2, NOx, and mercury emissions, that are subject to existing environmental regulations. As a result, there is no cost impact to PEF or its customers from an emissions standpoint to consider nuclear energy generation.

Additionally, and perhaps more significantly, nuclear energy generation does not involve the burning of carbon-based fuels. All fossil fuels, on the other hand, when burned to produce energy release carbon into the air in the form of carbon dioxide ("CO_2"). Carbon dioxide is a GHG, and GHG contribute to global warming. In fact, carbon dioxide is probably the most significant GHG. As a result, presently there are a number of proposals for the regulation of GHG, in particular, carbon dioxide. Proposals to regulate GHG, if implemented, have an impact on a utility's assessment of the most cost effective alternative generation resource to meet future reliability needs. Indeed, the proposals to regulate GHG make nuclear generation a more cost effective alternative generation resource to fossil fuel generation resources.

Q. Can you explain how the Company incorporated all of these factors in its resource planning analysis and determined that Levy Units 1 and 2 are the most cost-effective generation alternative to meet future customer needs?

A. Yes. As I have generally explained above, the Company evaluated the CPVRR of the advanced light water nuclear generation units, Levy 1 and 2, against an all natural gas generation reference scenario. The Company included the economic benefits from the reduced price estimate for Levy Unit 2, resulting from the economies of scale and

engineering and construction efficiencies from constructing both units within a year to eighteen months of each other, in its CPVRR evaluation of Levy Units 1 and 2.

The Company used the Strategist computer model to compare Levy Units 1 and 2 to the all natural gas generation reference case. The Strategist computer model is a resource optimization program from New Energy Associates. The primary output of Strategist is a CPVRR comparison of potential resource plan combinations on PEF's entire system that will satisfy PEF's reliability requirements.

Supply-side resources are typically evaluated in the Strategist model over a ten-year planning period and a thirty year study period. With the evaluation of new nuclear generation beginning in 2016, however, the use of a typical thirty-year study period accounts for the costs and benefits of only the first twenty years of commercial operation of the nuclear generation units, because there are ten years in the model before commercial operation of the nuclear units is planned. The economic benefits from the commercial operation of Levy Units 1 and 2, however, will continue over the sixty-(60)-year expected life of the units. That life includes a forty (40) year, initial license period plus the accepted convention based on experience that the license for such units can be extended an additional twenty (20) years. In our evaluation of future nuclear generation, then, we decided to extend the model study period to sixty years to capture the long term costs and benefits of nuclear generation. This CPVRR evaluation, we believe, more accurately accounts for the economic costs and benefits of nuclear generation given the commercial life of those units.

PEF worked with New Energy Associates to extend the model beyond its typical thirty-year study period to a sixty-year study period. This modeling work

allowed the CPVRR analyses to more accurately account for the economic costs and benefits for the majority of the commercially operational life of Levy Units 1 and 2. The sixty-year modeling period in the Strategist computer model that the Company used provides the best practicable method of capturing the economic costs and benefits of the commercial operation of Levy Units 1 and 2. This analysis is conservative too, since it still does not reflect the entire expected commercial operation period of Levy Units 1 and 2.

The results of this CPVRR analysis are shown in the table in Exhibit No. ___ (JBC-9) to my testimony. This table represents the CPVRR economic evaluations of the Resource Plan with Levy Units 1 and 2 compared to an all-natural gas generation reference resource plan. In Exhibit No. ___ (JBC-9), as you can see, we also included in the CPVRR modeling analysis our mid-level, low, and high natural gas and oil forecasts and our reasonable forecasts of potential GHG air emission compliance costs. As a result of these CPVRR analyses in the Strategist model there were fifteen (15) different CPVRR scenarios.

The resource expansion plan with the nuclear generation alternative in 2016 and 2017 is more beneficial for customers on a CPVRR basis in ten (10) of the fifteen (15) CPVRR scenarios. In those 10 out of 15 CPVRR scenarios where the nuclear generation resource plan was more cost-effective than an all natural gas reference plan, the range of benefits to customers for a resource plan including Levy Units 1 and 2 is from a low of $85 M to a high of about $12,000 M.

The generation resource plan including Levy Units 1 and 2 is in fact more cost-effective than an all natural gas generation resource plan under every high fuel cost

scenario. Because the CPVRR evaluation did not capture the last ten years of commercial operation of Levy Units 1 and 2, and there no doubt likely would be additional benefits from nuclear generation in that period, the Company believes that the nuclear generation resource plan will likely be more cost-effective under the mid-fuel gas and oil case in all scenarios except the unlikely event of no GHG emission regulation too. Only in the unlikely events, in the Company's view, of low gas and oil fuel costs and no GHG regulation, or a combination of low fuel with lower- to mid-cost GHG regulation, is the all natural gas resource plan more cost-effective.

As a result of its evaluation, the Company concluded that, in its judgment after taking into account all of the factors that the Florida Legislature requires the Company to consider in assessing the cost-effectiveness of nuclear generation to meet a future need, the resource plan including Levy Units 1 and 2 was the most cost-effective generation alternative.

Q. What happens if the costs to develop and place Levy Units 1 and 2 in commercial operation change over the next decade; did the Company consider that possibility in its evaluation?

A. Yes, it did. Potentially higher costs, of course, are an inherent risk with nuclear generation development, especially when you consider the unique nature of this project, which will require the construction of the first nuclear power plants on a Greenfield site in more than thirty years in this country. The long-lead time necessary to site and obtain regulatory approvals for new nuclear reactors, in addition to the time to design and construct them, precludes the Company from receiving anything more

than cost estimates and non-binding ones at that at this time, even though the Company is working with the best information available today.

Costs are likely to change as cost estimates are refined and costs are incurred over the next decade as the Company proceeds toward commercial operation of these units. The circumstances affecting these costs include the potential risk of permitting and licensing delays at the state and federal level, litigation delays at the state and federal level, labor and equipment availability, vendor ability to meet schedules, material and labor cost escalations, the possible imposition of new regulatory requirements, inflation or increases in the cost of capital, and the ability to acquire necessary rights-of-way in a timely manner for associated transmission facilities, among others. Faced with the risk that any one or more of these circumstances may occur over the next ten years, the Company agrees that the actual cost to place Levy Units 1 and 2 in commercial operation may be higher than the current, non-binding cost estimates.

So, the Company did in fact conduct scenario evaluations with higher cost sensitivities. As one would expect, the higher the capital costs, the less economic the nuclear plants become. Even so, however, when we compare the risk of higher capital costs with the risks of higher fuel costs and higher GHG emission costs, Levy Units 1 and 2 still have significant economic advantages in most scenarios over natural gas. Indeed, under all high fuel cost scenarios, the Levy nuclear plants remain economic notwithstanding the increased capital cost sensitivities.

Q. Are there economic benefits to customers from the construction and operation of Levy Units 1 and 2?

A. Yes. Levy Units 1 and 2 will provide PEF and its customers reliable capacity and energy generation from the lowest cost fuel source commercially available to the Company. As I have explained, nuclear fuel historically is the most stable and lowest cost fuel for electrical energy generation. The Company's fuel forecasts, contained in Exhibit No. ___ (JBC-5), demonstrate that nuclear fuel will continue to be the lowest cost fuel available for commercially feasible supply-side generation in the future.

Mr. Weintraub further explains that these fuel forecasts represent the technical expertise of two, independent, third-party sources and the Company's own expertise and experience. The combination produces the most reasonable forecast taking into account both third-party market information and information internal to the Company. PEF forecasts that nuclear fuel assemblies will be the lowest cost fuel source for the Company, even with recent increases in the commodity cost for uranium. The uranium supply is projected to increase to meet demand created by additional nuclear generation. Mr. John Siphers explains this is exactly what occurred the last time the uranium commodity cost increased because additional, future nuclear reactors were announced. The uranium supply increased to meet demand, and the cost leveled off and reached an equilibrium that was well below fossil fuel costs at the time. The same result is expected today, the supply of uranium will increase to meet projected demand from current announcements of potential, future nuclear reactors, and the uranium price will stabilize at a level that is still well below projected costs for natural gas and oil.

By adding generation with the lowest cost fuel to meet customer demand, then, customers receive an economic benefit. Other supply-side generation alternatives, in particular natural gas plants, have lower capital costs but they expose customers to higher and more volatile fuel costs for the life of the units. The economic benefits of the lower cost nuclear fuel source for customers are immediate and continuing --- nuclear generation from Levy Units 1 and 2 will take their place at the head of the dispatch order and customers will see a reduction in the fuel costs on their bills. During peak hours Levy Units 1 and 2 will provide energy to meet customer demand at a lower fuel cost than any other generation source and during off peak hours this nuclear generation will displace higher cost fossil fuel generation.

Q. Are there other potential economic benefits for customers if Levy Units 1 and 2 are approved and achieve commercial operation as planned?

A. Yes. Under the Energy Policy Act of 2005 ("EPACT"), federal production tax credits were provided as an incentive for utilities to invest in nuclear power generation. These production tax credits are only available for the first few nuclear power reactors that are put into commercial operation. The production tax credit is $0.018/kWH for the first eight years of the nuclear facility's operation, if the facility meets certain eligibility requirements and deadlines and is in service by January 1, 2021. PEF has conservatively estimated the value of the production tax credits for customers at $88 million to $167 million if Levy Units 1 and 2 are brought on line by 2016 and 2017. PEF was conservative, however, in its detailed CPVRR evaluation of the Levy nuclear units against an all natural gas reference case and did not include the production tax

credit benefits in that evaluation. The production tax credit benefits, therefore, represent an additive potential benefit for PEF's customers.

Additionally, EPACT provides utilities that develop and commence operation of new nuclear reactors Department of Energy ("DOE") loan guarantees and DOE stand-by support, which is a type of risk insurance. It is unclear at this time, however, whether the DOE loan guarantees and stand-by support will be available to the Levy project. PEF continues to review whether such programs will be available.

Q. Will Levy Units 1 and 2 contribute to the long-term stability and reliability of the Florida electric grid?

A. Yes, they will. Levy Units 1 and 2 will provide needed base load capacity to PEF's system, thus, adding base load capacity on the electric grid as a whole. They will essentially operate year-round, at a very high capacity factor, producing energy using state-of-the-art, advanced nuclear power generation technology. The technological advancements in the Westinghouse AP 1000 design will provide greater operational efficiency and reduced maintenance with lower maintenance costs compared to existing nuclear technology in operation today. The Westinghouse AP 1000 uses passive safety system designs and engineering simplicity to reduce the sheer number of material and working parts that can be found in and that must be maintained in currently operating nuclear reactors. As a result, Levy Units 1 and 2 will provide more efficient, reliable base load generation to the electric grid.

Additionally, Levy Units 1 and 2 will be placed on a system with aging base load generation. The vintage of PEF's current base load generation runs from over

twenty to over forty years old. By the time Levy Units 1 and 2 achieve commercial operation in 2016 and 2017, respectively, the vintage of PEF's existing base load generation units will be even older, ranging from over thirty to over fifty years old. PEF's existing nuclear unit, CR3 for example, is currently over 30 years old and it will be over 40 years old by the time Levy Units 1 and 2 come on line. The addition of Levy Units 1 and 2 will certainly change the vintage of PEF's base load generation for the better, in this additional way providing PEF and the State with more reliable, efficient base load generation.

VIII. ENHANCEMENT OF STATE ELECTRICAL POWER PRODUCTION

Q. Florida Statute Section 403.519(4)(a)2 requires the Company to explain how Levy Units 1 and 2 will enhance electric power production within the state by improving the balance of power plant fuel diversity and reducing Florida's dependence on fuel oil and natural gas. Can you address this requirement?

A. Yes. In recent years, PEF and other Florida electric utilities have relied almost entirely on natural gas generation to meet customer reliability needs. During the 90's and early 2000's this generation resource selection was warranted by advancements in technology, low relative natural gas fuel costs, and the need for more flexible generation units to fill in between base load and peaking load units. As a result, natural gas generation has increased, and will continue to increase, as a component of PEF's fuel and energy generation mix and the fuel and energy generation mix of other electric utilities in the state.

The addition of Levy Units 1 and 2 in the future counters this trend and provides greater fuel diversity for PEF. As I have explained, and as demonstrated in Exhibit No. ___ (JBC-8), without Levy Units 1 and 2, nuclear generation will account for only 12 percent of the energy generation needed to meet load in 2018. With Levy Units 1 and 2, however, nuclear generation will contribute 38 percent of PEF's total system energy to meet load in 2018. This increase in nuclear generation as a percentage of PEF's energy production in 2018 will therefore improve the balance of power plant fuel diversity for PEF. If PEF improves its fuel diversity, there will be a corresponding beneficial impact on the balance of power plant diversity in the state.

Likewise, the increase in nuclear generation by the addition of Levy Units 1 and 2 to PEF's system reduces reliance on additional fossil fuel generation. As a result, PEF will use less fossil fuel for energy generation with Levy Units 1 and 2 than PEF would have used without those units on its system. If PEF uses less natural gas and oil in the future with the addition of Levy Units 1 and 2, PEF is contributing to efforts to reduce Florida's dependence on fuel oil and natural gas for energy generation.

IX. CONSEQUENCES OF DELAY

Q. What will be the impact of delay in a need determination for Levy Units 1 and 2?

A. If the need determination for Levy Units 1 and 2 is delayed, the implementation of this project will be delayed, the project may be terminated, and PEF's future development of nuclear generation may need to be reconsidered.

PEF must proceed with the need determination at this time to remain on schedule. As I have explained, nuclear generation units require considerably more time to site, obtain various regulatory approvals, design, engineer, and construct than other generation alternatives. PEF must obtain a need determination at this time to begin the procurement process for long lead items and commence the engineering work necessary to ensure that the nuclear units will be completed in time to meet the Company's reliability need in the summer of 2016 and the summer of 2017, respectively. If there is a delay, PEF will not be able to satisfy its minimum 20 percent Reserve Margin planning criterion by the summers of 2016 and 2017 with nuclear generation. If other options are considered to meet the Company's reliability need in the same time frame the Company may have to reconsider the development of additional nuclear generation facilities to meet future customer needs.

If that occurs, PEF and its customers would lose the benefits of reliable and cost-effective nuclear generation that I have described in my testimony. For example, without the commercial operation of Levy Units 1 and 2 in the 2016 to 2019 period, PEF's customers will likely be subject to higher and more volatile fuel costs as higher cost fossil generation units or purchased power are used to meet their reliability needs. They also will likely lose the potential production tax credits and other financial benefits that EPACT provides for the first wave of new nuclear generation facilities. Additionally, PEF and its customers would face greater exposure to potential GHG regulation at a potentially greater cost to PEF and its customers.

Finally, as I have indicated, any delay in the need determination for Levy Units 1 and 2 will have an impact on the Company's evaluation of nuclear generation as a

potential future generation resource. Nuclear generation is a substantial commitment of Company time, effort, and resources. A denial or delay in approval of these units inevitably means higher costs if the Company proceeds with them at a later date, but more than that, a denial or delay in approval raises doubts regarding the further investment of the Company's time, efforts, and resources in developing nuclear generation that could be expended elsewhere. If there was a denial of the need, or a delay in the determination of need for Levy Units 1 and 2 however long it may be, the Company would be forced to re-evaluate its commitment to nuclear generation to meet the Company's future reliability needs.

X. CONSERVATION AND RENEWABLE MEASURES

Q. Did PEF attempt to mitigate its need for Levy Units 1 and 2 by pursuing conservation or renewable resources reasonably available to the Company?

A. Yes, we did. As I discussed previously, the Company has identified and implemented a set of cost-effective DSM programs that have successfully met and exceeded Commission-established DSM goals. The Company's most recent, approved DSM programs go beyond the previously approved goals and attempt to obtain even more MW savings from energy efficiency and other demand-side measures. These programs and measures are explained in greater detail in the testimony of Mr. Masiello. The Company expects, however, to reduce an additional 945 WMW of peak demand load from its enhanced DSM programs and measures for a total load reduction of over 2,400 MW from its DSM Program.

Additionally, the Company has invested substantial time and commitment to the development of renewable resources to meet customer capacity and energy needs. PEF continues to make purchases from renewable energy facilities, including Municipal Solid Waste Facilities, Waste Wood, Tires, Landfill Gases, and even photovoltaics, as well as purchases from cogeneration facilities. PEF has also entered into contracts for capacity and energy from biomass energy crops, and what will be the largest waste-wood biomass plant in the nation. The Company has even issued a request for renewables ("RFR") to expand its renewable portfolio even further. These renewable energy resource facility contracts, those in place and those that can reasonably be expected in the future, are explained in further detail in the testimony of Robert Niekum.

PEF is committed to continuing to develop viable DSM programs and renewable energy resources as part of its balanced solution to meeting customer growth and demand in the future and to reduce the Company's reliance on fossil fuels. Even with this continuing commitment to DSM and renewable resources, however, Levy Units 1 and 2 will still be needed in the 2016 to 2019 timeframe to meet the Company's reliability needs.

XI. CONCLUSION

Q. Please summarize the benefits of Levy Units 1 and 2.

A. Levy Units 1 and 2 will maintain electric system reliability and integrity in the time period 2016 to 2019 and beyond by meeting the Company's 20 percent Reserve Margin commitment with additional base load nuclear generation resources.

Customers will receive adequate electricity at a reasonable cost because nuclear fuel is the lowest cost fuel resource available to the Company and the nuclear units will displace higher cost fossil fuel generation. Nuclear generation adds fuel diversity and fuel supply reliability to PEF's system and it helps insulate the Company and its customers from environmental costs such as potential GHG regulations. Levy Units 1 and 2 will be state-of-the-art nuclear generation units, operating at high efficiency and availability on the lowest cost commercially available fuel, with environmentally clean generation. We are pleased to be able to add Levy Units 1 and 2 to the Company's generation fleet and we request that the Commission approve the need determination for these units.

Q. Does this conclude your testimony?

A. Yes.

BY MR. WALLS:

Q Mr. Crisp, do you have a summary of your prefiled testimony?

A Yes, sir, I do.

Q Will you please summarize your prefiled testimony for the Commission.

A Good morning, Mr. Chairman, Commissioners. My name is Ben Crisp, and I am Director of System Planning and Regulatory Performance for Progress Energy Florida.

Progress Energy Florida needs Levy Units 1 and 2 to effectively serve our customer's base load energy needs. Our integrated resource planning process optimizes supply-side options along with demand-side options into an optimal plan designed to deliver reliable cost-effective power to Progress Energy customers. Through our planning process, we have maximized our available renewable energy sources, evaluated and implemented cost-effective technologies and conservation measures, and our optimization models continue to identify these nuclear generation units as the most cost-effective means to serve our growing base load generation deficit. Our optimal plan, therefore, calls for the addition of Levy Units 1 and 2 in 2016 and 2017.

Progress Energy needs Levy Units 1 and 2 to meet its 20 percent reserve margin during the 2016 to 2019 time period. Customer growth and load growth are still increasing in Florida

despite the effects of a temporary national economic downturn. The long-term growth trends for which Progress Energy has a proven forecast accuracy track record in our ten-year site plan process show that over 2,000 megawatts of base load capacity must be added to provide reliable and cost-effective energy supply.

Levy Units 1 and 2 are needed to provide that reliable and cost-effective capacity and energy over this long time period to meet our expected customer needs. Progress Energy needs additional base load generation. Base load demand has been growing and will continue to grow with additional customer and load growth over the next decade and beyond. By the time Levy Units 1 and 2 come on line, they will be the first base load generation for Progress Energy Florida in over 30 years. Crystal River Unit 3, our last base load nuclear unit, was added to our system in 1977. This unit is currently providing over $500 million per year in fuel savings to our customers.

Levy Units 1 and 2 will add needed new base load generation technology to our system, and will also provide additional fuel savings proportional to Crystal River Unit 3. Progress Energy needs Levy Units 1 and 2 for fuel diversity to protect our customers from fuel volatility cost exposure. Without Levy Units 1 and 2 in 2018, we would be forced to rely on fossil fuels for 85 percent of our energy for our customers.

Natural gas and oil, fuels whose prices are subject to global commodity price volatility and supply instability, would be over 60 percent of our energy generation.

With Levy Units 1 and 2 we will reduce our exposure to fossil fuel generation to below 60 percent and increase nuclear generation to nearly 40 percent of our energy mix. Levy Units 1 and 2 will allow us to achieve fuel diversity in the future, thereby contributing to a balanced and optimum array of fuel sources that meet our customer needs. Levy Units 1 and 2 will provide adequate base load generating capacity at a reasonable cost.

Nuclear generation relies on the lowest cost fuel source available to the company. In fact, when both Levy Units 1 and 2 are on line, fuel savings are estimated to be at least $930 million annually. This fuel source increases our fuel independence by reducing our reliance on volatile fossil fuels and it increases our independence from fossil fuels.

Levy Units 1 and 2 are the most cost-effective generation alternative available to meet the company's need beginning in 2016. The Florida Legislature requires that nuclear generation be considered cost-effective in part if it improves the company's fuel diversity, reduces the company's and Florida's reliance on fossil fuels, and improves the long-term grid reliability. Levy Units 1 and 2 do just that by adding new base load advanced technology generation that does

not rely on fossil fuels and that increase our fuel diversity.

The Florida Legislature also requires that nuclear generation be considered cost-effective if it reduces the company's exposure to costs resulting from existing and potential environmental regulations. We must consider these units in light of a future carbon constrained world. With greenhouse gas regulations and resulting costs likely and higher resulting natural gas costs in the future, Levy Units 1 and 2 are the most cost-effective future source of generation for our customers. We are pleased to be able to add Levy Units 1 and 2 to the company's generation fleet. We believe this is the right choice for our customers, for our company, and for Florida.

We respectfully request that the Commission approve the company's petition for the determination of need for Levy Units 1 and 2. Thank you.

CHAIRMAN CARTER: Mr. Walls, before you go on, I think I may have misstated. What I should have said is that the prefiled testimony of the witness will be entered into the record as though read.

You're recognized, sir.

MR. WALLS: We would tender Mr. Crisp for cross at this time.

CHAIRMAN CARTER: Mr. Burgess.

Mr. Brew, you're recognized, sir.

MR. BREW: Thank you, Mr. Chairman.

CROSS EXAMINATION

BY MR. BREW:

Q Good morning, Mr. Crisp.

A Good morning, Mr. Brew.

Q Mr. Crisp, can I refer you to the Need Study, Page 84. Let me know when you are there, please.

A I'm there.

Q And do you see the paragraph headed D, the CPVRR economic analyses with Levy Units 1 and 2?

A Yes, I do.

Q And the second to the last sentence of that paragraph says as a result the company's CPVRR analysis of Levy Units 1 and 2 must be expanded to account for these additional legislative considerations to the extent practical in the Strategist model. When you reference additional legislative considerations, are those the considerations in Section 403.519 that you just referred to in your summary?

A That's correct.

Q Okay. And so the results of that analysis are shown on the following page on what is labeled Table 10?

A On Page 85?

Q Yes.

A That's correct.

Q And referring back to your prefiled testimony and

exhibits, Table 10 is the same as the exhibit shown on your JBC-9?

A That's correct.

Q So if we can focus on that exhibit, that shows a cumulative present value revenue requirement comparison of Levy Units 1 and 2 to an all gas capacity generation scenario, is that right?

A An all gas reference case, that's correct.

Q And this reference case is based on an analysis that occurs over 60 years?

A That's correct.

Q And that's from 2007 to whatever 60 from that is, to 2066?

A 2066, which is the lifecycle of the nuclear plant.

Q And that assumes in-service dates for Unit 1 of 2016?

A That's correct.

Q And Unit 2 of 2017?

A That's correct.

Q And no delays in those in-service dates?

A That's correct.

Q And also that Unit 2 is completed within -- well, in this case, a year of Unit 1, is that right?

A That's correct.

Q Now, am I correct that based on the exhibits, the company developed this comparison or this matrix based on

essentially two variables. You used variation in gas prices using a low, mid, and high gas reference case?

A The two variables that you are referencing, the low, mid, and high fuel reference case, full is one variable, the other variable is carbon.

Q Thank you. And the fuel information that goes into this analysis you got from Mr. Weintraub?

A That's correct.

Q And the CO2 cost component of that you got from Mr. Kennedy?

A That's correct.

Q And the CO2 numbers that specifically went into your Strategist model are the numbers that are shown on Appendix I of the need study?

A That's correct.

Q And did you or the folks that work for you make any revisions or alterations to those CO2 numbers from what was supplied by Mr. Kennedy?

A Mr. Kennedy supplied us numbers for carbon that went through the period of time that were provided by each one of the specific cases. In several of the cases we took those numbers and we expanded those out to the 2066 time frame.

Q And what was the basis for expanding them out?

A Please rephrase your question.

Q You just said that in some cases you expanded those

values out?

A We had to go from 2050 out to 2066 so that we could model them appropriately for the life cycle of the nuclear units.

Q And did you extend them out, assuming a certain level of escalation in prices, or did you make any other inputs?

A We extended them on the basis of a cumulative average growth, cumulative average growth estimate. We took the last five years that were provided and used that as a rolling average to project.

Q Okay. Thank you.

So the analysis, then, gives us basically 15 answers, right?

A There are 15 different potential scenarios.

Q For which you have 15 different results?

A That's correct.

Q And so the number shown in each of the boxes is that cumulative present value revenue requirement comparison nuclear versus gas?

A Versus the base gas reference case.

Q Okay. Now, looking at this matrix, five of the numbers are negative, is that right?

A That is correct.

Q And a negative number means that over the course of the 60 years, the cumulative present value revenue requirements

of that scenario is negative gas versus coal, which means that gas would have been more economic over that time frame, right?

A No, sir. Please restate your question.

Q It was a little confusing. I'm sorry.

A negative number means that over the 60-year period study, nuclear is more expensive on a cumulative present value revenue requirement basis than the gas scenario study, is that right?

A In the five scenarios where negative numbers are listed, those scenarios, the cumulative present value revenue requirements for the nuclear case is more expensive than the base gas case.

Q Thank you. You said it much better than I could. Thanks.

Now, on each of those cases -- or in all 15 cases, is it true that initially the revenue requirements are higher for nuclear because of the initial capital cost?

A I would have to look at the tables for each one of the scenarios to evaluate and see what is higher and what is not.

MR. BREW: Okay, let's do that.

Mr. Chairman, what I'm circulating is a part of a composite exhibit. It is Progress Energy Florida's response to White Springs First Set of Production of Document, Request Number 5.

CHAIRMAN CARTER: Thank you, Mr. Brew.

MR. BREW: There is no need to mark it.

CHAIRMAN CARTER: That's good. Thank you.

MR. BREW: And it is Tab 19 of the composite exhibit.

CHAIRMAN CARTER: Thank you. You may proceed.

BY MR. BREW:

Q Mr. Crisp, whenever you're ready.

A I'm ready.

Q So just to be clear, if we could start on the, I guess the pages where the numbers start that is labeled Page 1 of 14?

A I'm there.

Q Okay. That is labeled reference case comparison, and since we are working off color copies, we have basically a red, green, and blue for the mid, high, and low fuel sensitivities?

A Yes, sir.

Q Okay. And then within each of those groups, there are values for gas and the nuclear case for each of the five CO2 reference cases, is that right?

A That's correct.

Q So just sticking to Page 1 of 14, and looking at the year 2016, which is when Levy Unit 1 would go into service, am I correct that for each scenario studied on that page, the cumulative present value revenue requirement in that year is negative?

A That's correct.

Q And this is a little awkward because of the way it prints out, but flip to Page 2, which shows the low fuel sensitivity --

A I'm there.

Q -- then in 2016 in each of those scenarios that value is also negative, is that right?

A That's correct.

Q And does that mean that in that year -- well, in that year, at least on a revenue requirement basis, nuclear is more expensive than the gas case?

A At that point in time, yes.

Q Yes, just that year.

Just to shorten this, if I went all the way to the last page, which is Page 14 of 14 -- when you're ready.

A I'm ready.

Q For the low reference fuel cost case with MIT mid CO2, do you see it?

A Low reference fuel case.

Q Low reference fuel case, cost case with MIT mid CO2. Do you see that line?

A I'm there.

Q Okay. So in 2066 that shows a positive value of 85.464, which is in millions of dollars, is that right?

A That's correct.

Q And so that is a positive number. And on your Exhibit 9 where it shows $85 million for the MIT mid-range case, that's the value that we are talking about?

A That's correct.

Q And so for the MIT low reference fuel cost case, the cumulative present value revenue requirements only turns positive for nuclear in 2066, is that right?

A That's correct. I should add that as you go up into the mid and the higher fuel reference cases as well as the higher carbon cases, the break-even point becomes much sooner.

Q Right.

A I should also add that staff has asked for --

MR. BREW: Excuse me, Mr. Crisp. You're only answering my questions. He is not volunteering additional testimony.

MR. WALLS: He can finish his answer, can't he?

MR. BREW: He did finish his answer. He started continuing --

CHAIRMAN CARTER: Hang on a second. Hang on a second.

MR. BREW: The question was simply --

CHAIRMAN CARTER: Mr. Crisp -- wait, wait, wait. Did you finish your answer, sir?

THE WITNESS: No, sir.

CHAIRMAN CARTER: You're recognized.

A (Continuing) The staff also asked us to update this table based on information that the no-carbon scenarios were less likely than the higher carbon scenarios, and based on the fact that the low fuel reference scenarios were less likely than the mid and high fuel scenarios, we updated the table just to include the mid fuel reference and the high fuel reference as well as the carbon cases from Bingaman-Specter all the way down to Lieberman-Warner. Now, when we did that, it provided a new updated table so that the cumulative present value revenue requirements that were reflected, reflected significant benefits for the ratepayer in seven out of the eight scenarios.

CHAIRMAN CARTER: Mr. Brew.

BY MR. BREW:

Q Mr. Crisp, if the line item for the Lieberman-Warner analysis were updated to reflect the current estimates from Charles River Associates, would your numbers change?

A I'm sorry, please restate.

Q You have in your line item a Lieberman-Warner CO2 cost case, is that right?

A That's correct.

Q That is based on the Charles River Associates analysis back in November of 2007, is that right?

A I believe so.

Q If their updated analysis showed substantially lower CO2 numbers and they were put into your Strategist models, that

would show different crossover points from when that scenario would be positive, wouldn't it?

MR. WALLS: Objection, assumes facts not in evidence.

BY MR. BREW:

Q Mr. Crisp, if the Lieberman-Warner bill produced lower CO2 prices than what is assumed in the analysis on your exhibit, wouldn't that change the present value analysis?

A I don't know the answer to how it would affect the analysis specifically, but Lieberman-Warner is under discussion as even being higher. I mean, the Charles River study and the additional work on Lieberman-Warner is showing that the numbers may even be higher at this point in time.

Q But you have only taken the numbers you got from Mr. Kennedy, right?

A That's correct.

Q Mr. Crisp, moving to the need study, Page 97, your Table 11?

A I'm there.

Q Now, in the preceding page, Page 96 of the study, beginning with the paragraph that reads circumstances are likely to change, do you see that?

A I see that.

Q And do you describe circumstances of various kinds that could possibly lead to delays in the in-service date of the plants?

A That's correct.

Q And you also mention some factors that could lead to increases in costs of the plant?

A That's correct.

Q And the Table 11 shows three sensitivities you performed assuming increases in the capital costs of the plant, is that correct?

A That's correct, and one that was below.

Q And what is shown on Table 11 is cases with a 5 percent, 15 percent, and 25 percent -- well, 5, 15, and 25 percent increase and a 5 percent decrease?

A That's correct.

Q And all of those analysis assume the proposed in-service dates for those units, right?

A That's correct; 2016 and 2017.

Q So you have not provided any assessment of the likely costs -- the impact on your present value analysis of delaying the in-service dates, is that right?

A No, we haven't. And we need those units in 2016 and 2017, that's what we are planning for, that's what we have modeled, and that's what is proven to be in the best interest of our ratepayers.

Q But if the units are delayed in terms of their in-service date, that will have an impact on the cost of the units and the cost to consumers, would it not?

A I didn't do an analyst on the units being delayed.

MR. BREW: That's all I need. Thank you.

CHAIRMAN CARTER: Mr. Jacobs.

MR. JACOBS: Thank you, Mr. Chairman.

CROSS EXAMINATION

BY MR. JACOBS:

Q Good morning, Mr. Crisp.

A Good morning, Mr. Jacobs.

Q You just indicated that your analysis fundamentally finds that the units are needed in 2016?

A In 2016 and 2017.

Q Both units?

A Both units.

Q And on what basis?

A On the basis of a reserve margin deficit that triggered a study that determined a need for base load generation requirements of up to 2,000 megawatts during the time frame 2016 and 2017 that determined the most cost-effective solution for that deficit was Levy Units 1 and 2.

Q In the need petition -- I guess I can point you to a specific paragraph here. Hold on. The analysis in your need petition essentially determines that the nuclear, construction of these nuclear units is an extremely expensive proposition and is probably not the least -- is not the lowest-cost option

that you might have available to you. Is that a fair statement?

MR. WALLS: Objection, vague and ambiguous, what is meant by extremely.

CHAIRMAN CARTER: Mr. Jacobs, just point to his testimony. Let's see what --

MR. JACOBS: All right, sir. I will point you to the need determination.

BY MR. JACOBS:

Q Do you have that available to you?

A I have that document.

CHAIRMAN CARTER: Mr. Walls.

MR. WALLS: Is he referring to the study or the testimony?

MR. JACOBS: The actual need petition.

MR. WALLS: Mr. Crisp didn't prepare the petition, but I can find it.

CHAIRMAN CARTER: Is there something, Mr. Jacobs, in the need petition that you can get from this witness?

MR. JACOBS: I was of the view that Mr. Crisp was testifying as to the overall cost-effectiveness of the plant. If I'm mistaken, I would be happy to go to another witness.

MR. WALLS: That's fine. I just didn't know if -- I wanted him to make sure he had the right document in front of him.

MR. JACOBS: I'm on Page 4 of the need petition, Paragraph 5, Mr. Crisp.

CHAIRMAN CARTER: Give him a chance to get the information.

THE WITNESS: Yes, sir. And I apologize, I have the need study, not the need petition. But now I have the need petition.

CHAIRMAN CARTER: You're recognized.

THE WITNESS: I'm looking at Paragraph 5.

BY MR. JACOBS:

Q And at the beginning of that paragraph it says Levy Units 1 and 2 will be expensive. And then I'm going to go down to, I'm sorry, I don't have a line number for you, but at the end of the page, the last full sentence beginning, "Over the traditional." Do you see that?

A I'm there.

Q That sentence essentially acknowledges that the nuclear option is not the least-cost option, is that correct?

A No, it doesn't, sir.

Q Could you explain.

A What it states is that during a 30-year analysis, which would be an analysis of gas, it states that over the traditional 30-year study period the production cost analysis of the economics, that compared to nuclear generation natural gas is comparatively cheaper. Now, the reason for that is that

you are looking at just the front end of the life cycle. If you look at the entire lifecycle of the nuclear plant, Levy 1 and 2 provides considerable economic benefits to the ratepayers. And a simple way to look at this is one billion dollars a year in fuel savings to the ratepayers. $92 billion in cumulative present value revenue requirement savings to the customer as a result of Levy 1 and 2 versus a natural gas fleet.

Q Your assessment of that analysis depends heavily upon your projections of gas prices, correct?

A Gas prices, carbon environment.

Q Just further down, actually on the next page, Page 5 of the need petition?

A I'm there.

Q Actually it's the first full sentence on that page beginning, "When one analyzes"?

A I'm sorry, sir, where are you?

Q This is the fourth line at the top of Page 5 and still in Paragraph 5. I'm sorry, on page -- yes, on Page 5, still in Paragraph 5 of the petition. The sentence beginning with, "When one analyzes the nuclear project over 60 years"?

A Yes, sir, I'm there.

Q Okay. So this is taking a look at the project in the 60-year analysis that you just referred to?

A That's correct.

Q And in here the conclusion is reached that it is the most cost-effective when you consider all of the options here. Is it correct that this analysis does not include the transmission costs?

A The analysis included the transmission cost.

Q Your statement here, your statement here is assuming that those transmission costs are included?

A The analysis included the transmission costs.

Q It was my understanding -- so, then, so, then, when you project the full cost of this project, of these two units including transmission cost you stand by this statement that is concluded here?

A Absolutely. Levy 1 and 2 are the most cost-effective solution to meet the needs of our ratepayers.

Q Now, you've heard testimony past and you acknowledge here in your need petition that substantial portions of your numbers are uncertain and not final. Is that your understanding of the testimony thus far?

MR. WALLS: I'm going to object to the form of the question, vague, and what he means by substantial.

BY MR. JACOBS:

Q The cost of production of Units 1 and 2 as well as the cost of transmission are nonbinding cost estimates, is that your understanding?

A That is my understanding. But the planning process

includes typical planning analyses based on best available information at any point in time leading to the most cost-effective decision that we have here.

Q So at what point in time would your statement in this paragraph be relative to?

A I'm sorry, sir, please restate.

Q We just agreed that you believe that this statement in Paragraph 5 is true, and it includes transmission costs, and then I thought we also agreed that all of those costs are nonbinding. And so my point, my question to you now is at what point in time would you be willing to assert that these costs are true?

A I don't have responsibility for that decision, sir.

Q Great. Thank you.

One of the issues that you address in your testimony is the idea of whether or not the economics of Levy Units 1 and 2 can be shall -- strike that, let me state it this way.

Whether or not there are alternatives available in the form of DSM or energy efficiency that would affect the economics of Levy Units 1 and 2, is that a correct statement?

MR. WALLS: I'm going to object to the form of the question as vague and ambiguous, but if the witness understands he can answer.

CHAIRMAN CARTER: Just restate it, Mr. Jacobs.

MR. JACOBS: Let me go to his testimony.

CHAIRMAN CARTER: Just break it down to a less compound, and he might be able to answer it, or if you want to point to the specific.

MR. JACOBS: I'll do that.

THE WITNESS: Mr. Chairman, I believe I can answer the question.

CHAIRMAN CARTER: Okay. Take a shot at it.

THE WITNESS: Mr. Jacobs, we included DSM and alternative energy supplies as a normal part of our Ten-Year Site Plan process, as Mr. Masiello stated. We have included all of the expanded programs in our Ten-Year Site Plan process, and we have also included what renewable energy resources were gathered from the RFP and loaded into the Ten-Year Site Plan process and the planning process for this hearing. All of that was included. We still have a base load need for over 2,000 megawatts of generation, and Levy Units 1 and 2 still came out as the most cost-effective means to serve that load.

MR. JACOBS: Thank you.

BY MR. JACOBS:

Q Is it your position that energy efficiency and renewables would have no impact on the timing of the need that you propose in this case?

A I'm sorry, sir, can you please restate.

Q Yes. You have indicated that you need Units 1 and 2, over 2,000 megawatts in 2016?

A Yes. In 2016 and 17; yes, sir.

Q Is it your position that there is no configuration of energy efficiency or DSM portfolio that would affect the timing of that need?

A That's correct. We have already included DSM and alternative energy into the site plan, and as such we still need that base load capacity and energy.

Q And the DSM that you configured is as stated by Mr. Masiello, is that correct?

A Yes, sir.

Q And it is your position that the programs as proposed, which Mr. Masiello testified to are the maximum, the best possible result you could get from DSM?

A Yes, sir, according Mr. Masiello's testimony.

Q Okay. Have you ever done an analysis which looks at companies from the industry, which looked at companies that have adopted more aggressive DSM portfolios than is adopted by your company?

MR. WALLS: I'm going to object, lack of foundation.

MR. JACOBS: I asked if he has. I didn't state that he has.

THE WITNESS: I don't do those studies. Mr. Masiello does those studies.

BY MR. JACOBS:

Q In the planning that you do for system planning, have

you done an analysis as to the impact of -- and let's be very specific. Have you looked at states such as California and Massachusetts to look at the impact of more aggressive DSM portfolios in system-wide planning?

MR. WALLS: Objection, assumes facts not in evidence.

MR. JACOBS: I don't think I assume any facts. I asked him if he had looked at any other states.

MR. WALLS: He is assuming that those are more aggressive than here.

CHAIRMAN CARTER: I believe the question has been asked and answered.

Staff, did you hear something different?

MR. YOUNG: Mr. Chairman.

CHAIRMAN CARTER: Yes, sir, you're recognized.

MR. YOUNG: He asked has he ever done it. It's just a hypothetical in terms of his knowledge, so I think you can overrule the objection.

CHAIRMAN CARTER: Do you think you can answer that?

THE WITNESS: Yes, sir, Mr. Chairman.

MR. JACOBS: If it will help, Mr. Chairman, I will take out the part about more aggressive DSM.

CHAIRMAN CARTER: Let's see if he can give it a shot.

THE WITNESS: Yes, sir. Thank you, sir.

As Mr. Masiello stated, I believe that he stated that we are number one in the nation as far as our programs are

concerned. So Mr. Masiello has set a standard second to none. Mr. Masiello provides the input to DSM and alternative energy programs to us and we use that in our Ten-Year Site Plan. So, Mr. Masiello is the base line or is the standard for excellence that the nation follows.

MR. JACOBS: Thank you.

BY MR. JACOBS:

Q And now my question goes to in your planning process, and accepting Mr. Masiello's competence, in your planning process do you assess other experiences in the industry, particularly the experiences with regard to DSM effectiveness and production and how they impact system-wide planning?

A We do not specifically do DSM analysis other than what is provided to us by Mr. Masiello. That is his responsibility.

Q And so it would be fair to conclude, then, that if there is experience in the industry where a utility would defer load growth -- I'm sorry, defer plant additions because it has addressed load growth through DSM, you would not have that in your quiver of tools when you do your load planning?

A We include Mr. Masiello's input on the very front end of our planning process. First, let me explain the process and hopefully this will help everyone understand. As the first part of the planning process the load forecast is identified. Once the load forecast is identified, Mr. Masiello provides us

with the impact to load that he can reduce. So all of the DSM programs and the alternative energy programs that Mr. Masiello described are included on that front end and that reduces the overall load impact of our projected load.

So, yes, those studies are included. They are included as a result of Mr. Masiello's efforts, and they are included as a part of the impact to the original load forecast on the very front end of the planning process. At that point in time, after Mr. Masiello's programs are incorporated into the overall load forecast, that's when we start optimizing the models around what types of generation are needed to serve our load.

At that point, and that point only is when we start looking at generation supply. That's why I'm saying we still have a need. After all of Mr. Masiello's efforts, we still have a need for 2,000 megawatts of base load generation, and that Levy 1 and 2 are the most cost-effective means of serving that remaining load, that load growth.

Q Thank you. And just one final point. Let me go to Page 13 of your testimony beginning at Line 11. And here you describe and give rationale as to how you arrive at the projections of load growth, continued load growth in your planning area. So taking the description that you have just given, you would have expected that Mr. Masiello would have undertaken some kind of end use study to determine the extent

to which these various load growth factors are impacting you, is that correct? And you would have expected that he have would have implemented DSM programs which maximizes the availability of DSM to address these load growth factors, is that a fair statement?

A That is Mr. Masiello's job, sir. That's not my job and I cannot speak to it.

Q Okay. Were you here for Mr. Masiello's testimony yesterday?

A Yes, I was.

Q And do you recall that when we spoke to him about studies that have been done to maximize DSM, he was not familiar with them?

MR. WALLS: I'm going to object, mischaracterization of the testimony.

A I would have to see a record of the testimony, sir, to go back and read that.

Q We could do the transcript if you would like.

CHAIRMAN CARTER: Staff.

MS. HELTON: It seems to me a little bit of an unfair question to go back and let's revisit Mr. Masiello's testimony this afternoon.

CHAIRMAN CARTER: With this witness, anyway.

MS. HELTON: With this witness.

CHAIRMAN CARTER: The objection is sustained.

Move on.

MR. JACOBS: Thank you. One final moment, I think we are about done.

No further questions.

CHAIRMAN CARTER: Thank you.

Commissioners, I want to go to staff for a moment and then come back to us so we can kind of get our thoughts together and all like that, if that's okay.

Staff, you're recognized.

MS. FLEMING: Thank you.

CROSS EXAMINATION

BY MS. FLEMING:

Q Good morning, Mr. Crisp. How are you?

A Good morning, ma'am. I am doing fine. Thank you very much. How are you?

Q I'm good. Thank you. It's almost afternoon.

A Time flies when you are having fun.

Q I'm sure it does.

In your testimony you discuss production tax credits. Do you recall that?

A Yes, ma'am, I do.

Q And you discussed that federal production tax credits related to nuclear plant construction may be available to Progress, is that correct?

A Yes, ma'am. I believe that was a subject of an

interrogatory.

Q Would these production tax credits provide an opportunity for reduced overall cost of the Levy project?

A I think that's a question better suited for someone else.

Q Are you familiar with what amount would be available as far as a dollar amount for the production tax credits for the Levy project?

A I would have to revisit my interrogatory. Subject to check, I think those production tax credits were approximately 80 to $160 million.

Q Could I have you turn to Page 47 of your testimony, please. Specifically, Line 17.

A I'm there.

Q The million dollar amount that you just referenced, will that translate to the dollar amount that you have referenced here in your testimony on Line 17?

A Yes. That is the 88 million to $167 million for both Levy Units 1 and 2 brought on line by 2016 and 2017.

Q Okay. So the production tax credit is based on your testimony what amount?

A It is .018 cents per kilowatt hour.

MS. FLEMING: Thank you. At this time staff would like to hand out Progress's response to Staff's Third Set of Interrogatories Number 50. It is part of Staff's Composite

Exhibit under Tab 3, but for ease of reference we are providing copies to all parties.

BY MS. FLEMING:

Q Mr. Crisp, you prepared the response to this interrogatory, correct?

A That's correct.

Q And in this interrogatory you were asked to describe what time lines were available for determining test of eligibility for the production tax credits, correct?

A That's correct.

Q And you identified three different time lines, is that correct?

A There are three different points in time that were referenced within the interrogatory.

Q And those reference the combined operating license with the NRC on or before December 31st, 2008?

A That's correct.

Q Commencing construction by January 1st, 2014?

A Correct.

Q And beginning commercial operation by January 1st, 2021, correct?

A That's correct.

Q Do you believe that Progress will be able to meet these time lines?

A I do.

Q Thank you.

Mr. Crisp, could you please turn to your prefiled Exhibit JBC-8, please?

A I'm there.

Q I would just like to talk through about, just a little bit about Progress's energy mix. The top graph on this page shows the projected energy mix without Levy Units 1 and 2, is that correct?

A That's correct.

Q And in this graph nuclear represents about 12 percent, correct?

A Correct.

Q And in the bottom half of this page, the bottom graph shows Progress' energy mix with Levy 1 and 2, correct?

A That's correct.

Q And in this graph nuclear represents 38 percent, is that correct?

A Yes, it does.

Q And I believe you stated previously that Levy Units 1 and 2 have a nominal capacity of 1,100 megawatts, is that correct?

A Roughly.

Q So based on this graph, looking at the nuclear without Levy 1 and 2, which is 12 percent, and looking at the 38 percent nuclear with Levy 1 and 2, what would be a rough

estimation of the energy mix for nuclear if only one unit were put on line?

A We did not study an only-one-unit scenario, ma'am.

Q Okay. Well, let's try this just basic math. Both units are equivalent in size, correct?

A That's correct.

Q So if I take the bottom graph number, which is 38 percent for both units, and subtract that from the 12 percent on the top graph, which is none of the units, that would give me about 26 percent, correct?

A Yes, ma'am.

Q And if you divide that by two, assuming per each unit, it would be about 13 percent difference, is that correct?

A That's correct.

Q So then one could conclude that with one unit it would be about 25 percent nuclear?

A Roughly.

Q Thank you. Let me have you turn to JBC-3, please?

A Can I make a point of clarification on that, ma'am?

Q Sure.

A Our need for base load energy was specifically identified, the 2,200 megawatts. We are leaving out a point here on JBC-8 that I would like to clarify. What you see without Levy Units 1 and 2 is a significant amount of our base load energy being supplied by natural gas. Earlier, I

referenced one billion dollars a year in fuel savings. You can consider the inverse of that true, as well. If we don't build Levy Units 1 and 2 that natural gas that will be used to fuel base load capacity and energy could cost the ratepayers one billion dollars a year in additional fuel costs. Thank you.

Q Thank you for that clarification. Back on Exhibit JBC-3, please.

A I'm there.

Q This exhibit shows the summer demand of reserves with and without Levy Unit 1, is that correct?

A That's correct.

Q And I'm looking specifically at the year 2016 for the resource plan assessment with no nuclear generation.

A I'm there.

Q Specifically looking at the year 2016, it shows that there would be a megawatt -- Progress would need 509 megawatts of energy, is that correct?

A Did you say 509, ma'am?

Q 509.

A 509 megawatts of capacity.

Q Capacity, excuse me. And in 2016, I believe you stated earlier that is when Progress intends to put Levy 1 in service, correct?

A That's correct.

Q And Levy 1 will be 1,100 megawatts, correct?

A That's correct.

Q So would you agree that Levy Unit 1 is about, a rough approximation, twice the megawatt need identified in 2016?

A I would agree with you that there is approximately 500 megawatts that is above the 20 percent reserve margin. Now, what happens when you are going through the planning process is if you have a deficit in your reserve margin in that year, it triggers a study process. The study process goes through the analytics of determining what is the most cost-effective means of serving that deficit. It doesn't penalize you if you build more megawatts, if it goes above the 20 percent reserve margin. What it does is it searches for the most cost-effective additional units to drive the savings for the ratepayer.

So in the 2016 time frame, when a deficit was noted in the reserve margin requirement, the analytics and the models and the simulation models dictated that once all of the analyses were incorporated, the addition of Levy Unit 1 was the most cost-effective means, regardless of the fact that it provided more megawatts than was needed for the reserve margin. In fact, if we just went on a year-by-year basis and added a power plant or some means to just satisfy each year's deficit, it would be considerably more expensive to the ratepayer than by addressing the overall life cycle and by addressing the

overall planning horizon.

MS. FLEMING: Thank you, Mr. Crisp.

And to that end, at this time staff would like to pass out a summary exhibit that we prepared. I guess this would be identified as Hearing Exhibit 71, Commissioner.

CHAIRMAN CARTER: Commissioners, we need to mark this for identification as Exhibit Number 71. Ms. Fleming, a title, please.

MS. FLEMING: Summary exhibit.

CHAIRMAN CARTER: Summary exhibit sounds good to me.

(Exhibit Number 71 marked for identification.)

CHAIRMAN CARTER: You may proceed.

BY MS. FLEMING:

Q Mr. Crisp, could I have you turn to Page 1 of the summary exhibit, please?

A Yes, ma'am, I'm there.

Q Okay. Have you had an opportunity to review this document?

A Yes, ma'am.

Q Okay, thank you. Would you agree that with respect to the table on the left, the reserve margin forecast reflected here accurately reflect what is filed within your prefiled exhibits in JBC-3 and JBC-4?

A Yes, I do.

Q Would you agree with respect to the table on the

right, the numbers accurately reflect FPL's reserve margin forecast as set forth in the Turkey Point need determination order?

A I don't have that information with me. I will take your word for it.

Q Well, we have the source documents available for you.

MR. WALLS: I'd like to interpose an objection to the exhibit at this point. I don't have any objection to the PEF data that's included, we agree that that is an accurate summary of Exhibit JBC-3 and JBC-4. I do have an objection to the relevance of the FPL data in this proceeding. This is a need determination proceeding for Progress Energy Florida's Levy Units 1 and 2 plants, so I don't see the relevance at all of a reserve forecast for FPL's units, and I'm not sure the witness is qualified to testify about that.

CHAIRMAN CARTER: Basis?

MS. FLEMING: Commissioners, this is just a summary exhibit the staff prepared for the ease of the Commissioners and the parties because we felt that this is a unique posture that we are in with this nuclear determination. The only other need determination that we have had with respect to nuclear was FPL's recent one. We are not drawing or extrapolating any data from FPL's, we are just using it as a side-by-side comparison.

We are not intending to introduce this exhibit in as an exhibit, we are just using it for references to ask Mr.

Crisp directly about the Progress data. The information contained here is part of a Commission order that the Commission does not need to take official recognition of. It is a Commission order.

CHAIRMAN CARTER: Ms. Helton.

MS. HELTON: My suggestion, Mr. Chairman, would be to let us go forward with the questions and see whether there are specific objections to the questions that Ms. Fleming wants to ask.

CHAIRMAN CARTER: Okay. Well, also, Mr. Walls, preserve your objections and just make them as we go through, and that way we will -- just as we go through it, and there is a point during the time that you will want to make your objection, make those, and we will have those for the record. And then, Ms. Helton, I will be looking to you as we go forward.

MR. WALLS: Just to be clear, we are not disagreeing with the accuracy of the information that's reported here. We are objecting to the relevancy of comparing PEF to FPL, which this appears to do.

CHAIRMAN CARTER: Got you.

BY MS. FLEMING:

Q Mr. Crisp, could you just confirm for me, you have received a copy of the source document -- and I guess this will need a hearing exhibit, as well, Commissioner. Hearing Exhibit

72, is that correct?

CHAIRMAN CARTER: This will be Exhibit 71.

MS. HELTON: Mr. Chairman, can I hold on one minute and get a copy of all this, since I may be called upon to --

CHAIRMAN CARTER: That would be real nice if you got a copy of it. Hang on one second. Let's give Ms. Helton a chance to get this. Give her a copy of the document that staff is using, as well as the earlier document that we marked as Exhibit 71, which would be the summary exhibit.

And, Ms. Fleming, do you think we need to mark this that you just gave us, which would be Exhibit Number 72? Is that what you are asking us to do, or is this just for information purposes?

MS. FLEMING: I don't need to mark it since we are not intending to put this in as an exhibit. So we'll just strike that. Thank you.

CHAIRMAN CARTER: Ms. Helton, do you have everything that you need?

MS. HELTON: I'm sorry, Mr. Chairman, I didn't hear what you just said.

CHAIRMAN CARTER: Do you have everything that you need?

MS. HELTON: I hope so.

CHAIRMAN CARTER: Okay. Let's proceed.

BY MS. FLEMING:

Q Mr. Crisp, looking at the table on the right, and looking at the source document, which is the yellow cover page Bates stamped Number 61?

A I'm there.

Q Would you agree that the numbers reflected in the table on the right accurately reflect the information provided in the Commission order?

A I would.

Q Thank you. With respect to Progress's reserve forecast, specifically, looking at the column that's identified with Levy 1 and 2?

A I'm there.

Q Would you agree that the reserve margin is 33 percent in 2017?

A Yes, I would.

Q And the reserve margin that Progress has used for the basis of this calculation is the 20 percent reserve margin, correct?

A Progress Energy uses a 20 percent minimum reserve requirement.

Q Okay. So with the addition of Levy Units 1 and 2, what year would Progress project the reserve margin that would fall below 20 percent?

A I'm going to have to approximate for you. I would

say it would be about 2023. Now, let me also clarify a few points, if I could, for the Commission and staff. There are a number of issues that are in play in this time frame that effect our different generating units. As Mr. Lyash testified, there are joint ownership agreements that are apparently being discussed that would reduce the amount of megawatts here in this reserve margin calculation. It could reduce it considerably.

In addition, there is discussions going on about CR-1 and 2 and what to do with CR-1 and 2 with respect to pending carbon legislation. That would considerably reduce the number of megawatts of reserves here. So to say that 33 percent is an absolute amount in 2017, I think that is the number that we have loaded in based on information that we have today. There is a considerable amount of other impact that could come into play in between now and then that would reduce these reserve margins closer to the 20 percent amount.

Q So looking at the information before us and the statements you just made, is Levy Unit 2 driven by a reliability need or some other need?

A Both Levy 1 and 2 are driven by a reliability need. And as they were driven by a reliability need, then we performed the optimization analyses which dictated that the most cost-effective means of serving the customers was Levy 1 and 2 for base load capacity energy.

Q But in your prior statement you stated that there are other factors that you would look at with respect to whether Levy Units 1 and 2 need to be put in service, correct?

A That's correct.

Q So is Levy Unit 2 by itself driven by a reliability need, or is Levy Unit 2 driven by the other factors you have mentioned, such as economics and cost-effectiveness?

A All of the above. Levy 1 and 2 are the means of serving our base load deficit in 2016 and 2017, so it supplies the reliability. It also supplies the most cost-effective solution.

Q Has Progress performed any analysis whereby Levy Unit 1 would be put in service in 2016 and Levy Unit 2 would be put in service at a later time other than 2017?

A No, ma'am.

Q And why has Progress not performed that analysis?

A Because we have a need for both units in 2016 and 2017.

Q Thank you. At this time let me have you turn to Page 2 of the brown packet. It's is labeled "Fuel Diversity Comparison".

A I'm there.

Q With respect to the table on the left, would you agree that this accurately reflects Progress' fuel mix?

A Yes, ma'am. That is what is included in Exhibit

JBC-7 and JBC-8.

Q And I'm sure Mr. Walls will have the same objection with respect to the table on the right. So if you could, please turn to --

CHAIRMAN CARTER: For the record, Mr. Walls, for the record.

MS. FLEMING: I'm anticipating it. Bates stamped Page 64.

THE WITNESS: I'm there.

BY MS. FLEMING:

Q And there is a center paragraph that discusses in conclusion, and it discusses FPL's fuel project mix. Would you agree that this table accurately reflects the information that is found in the Commission order?

A I would.

Q Thank you. Looking specifically at 2006 fuel mix for Progress. Progress has 14 approximate percent for nuclear, correct?

A Correct.

Q 43 percent for coal, correct?

A Correct.

Q And 30 percent for natural gas, correct?

A That's correct.

Q Looking at 2018, coal drops to 24 percent, is that correct?

A Without Levy 1 and 2?

Q Yes, that's correct.

A Yes.

Q And then looking at 2018 with Levy 1 and 2, coal drops to 20 percent?

A That's correct.

Q Why does the coal drop so dramatically from 43 percent to 20 percent?

A For the 2006 numbers, Progress Energy was purchasing coal from several different suppliers, coal generation from several different suppliers. We had contracts with Southern Company, Tampa Electric, Jacksonville Electric Authority, and Central Power and Lime. All of those were providing us coal-based generation. Those contracts expired. Either have expired or will expire within the subject time frame, and that is the reason for the difference in the coal megawatts. Plus, you have got the load increases going. The load is increasing, so you have a bigger pool to divide by.

Q Thank you, Mr. Crisp.

At this time I would like you to turn to JBC-9. We discussed it, I believe, briefly with Mr. Brew. And staff has a blue handout which is the Late-filed Deposition Exhibit Number 1 that you referenced earlier with your discussions with Mr. Brew. This is part of the staff composite exhibit found under Tab 22. For ease we are just providing it to all

parties.

And before we get back to that question, let me go back to something you just said regarding the expiration of the contracts. Do you have the megawatt capacity of those contracts that are set to expire?

A I don't have them with me, ma'am.

Q Are they available anywhere in the need study?

A I don't know the answer to that.

Q Can we get a late-filed that delineates the megawatt capacity of the contracts that are set to expire?

A Certainly.

MR. WALLS: And just to clarify, you mean the coal contracts?

MS. FLEMING: Yes. The coal contracts that Mr. Crisp was referring to. So that would be 72.

(Late-filed Exhibit 72 marked for identification.)

CHAIRMAN CARTER: Okay. Commissioners, for the record, Exhibit 72 would be a late-filed exhibit on the expiration of the coal contracts for Progress Energy. Does that make sense for everybody?

MS. FLEMING: Yes.

(Late-filed Exhibit 72 marked for identification.)

BY MS. FLEMING:

Q Mr. Crisp, do you have the blue handout in front of you?

A Yes, I do, ma'am.

Q I believe earlier you were discussing with Mr. Brew the different environmental scenarios found under JBC-9, and there were 15 scenarios included there, correct?

A That's correct.

Q And during your testimony you stated that you also provided an updated scenario based on your late-filed deposition exhibit, is that correct?

A That's correct.

Q Does this accurately reflect what you provided?

A Yes, it is.

Q Okay. So could you explain to me what this exhibit entails? I noticed that there are several scenarios that have been eliminated. Can you explain to me how you derived the analysis, please?

A I'm sorry, can you please clarify.

Q You had 15 scenarios included in JBC-9, and now you have significantly cut certain scenarios, and now you have eight scenarios based on this late-filed exhibit. Could you please explain how you derived at your analysis from cutting from 15 to eight scenarios, please?

A Yes, ma'am. Thank you for the clarification.

In the original table we had a low fuel reference set of tables. There were five low fuel reference scenarios that were run. One for each of the no carbon, and one for each of

the different carbon scenarios. In addition, we had a set of scenarios for no carbon which included a no carbon low fuel, a low carbon mid fuel, and a no carbon high fuel scenario.

As a part of discussion as a part of what we observed within the Florida Power and Light ruling, they did not include a no carbon scenario. They also did not include a low fuel reference scenario, because what is currently under discussion at federal and state level is that it is more likely that carbon scenarios will be in play in this time frame, and the mid fuel and high fuel scenarios will result from those carbon scenarios. So on the basis of what's currently going on at federal and state level legislation, it was more probable to just reference the mid fuel and high fuel as well as the different carbon scenarios.

Q So, Mr. Crisp, looking at your late-filed deposition exhibit, would you agree then that this more accurately reflects the scenarios that are more likely to occur?

A Yes, I would.

Q In the need study, specifically Page 98, you also provide your scenarios based on an 80 percent ownership. Do you recall that?

A I do.

Q Would this updated analysis in your late-filed exhibit also be applicable to that 80 percent expansion plan that you have set forth?

A I don't understand the question.

Q Do you have Page 98 in front of you of the need study?

A One moment, please. I'm there.

Q On Page 98 of the need study, this is your analysis based on 80 percent ownership?

A Yes, ma'am.

Q You have 15 scenarios included here?

A Yes, ma'am.

Q Based on your deposition and your testimony today that you have eliminated scenarios and you have narrowed it down to eight scenarios that are more probable, would the same be applicable to this?

A Yes, ma'am.

Q Thank you.

Mr. Crisp, let me have you turn back to the brown handout which is the summary staff exhibit, please. It consists of three pages.

A I'm there.

Q And I'm looking specifically at Page 3, which reflects the estimated net bill impacts?

A Yes, ma'am, I'm there.

Q Would you agree as far as Column 1 where it states Levy 1 and 2 full ownership, would you agree that that accurately reflects Progress' response to Interrogatory Number

27, specifically Page 10 of 15 for that scenario?

A Yes, ma'am, I would.

Q Would you agree with the middle column, Levy 1 and 2 at 80 percent ownership, that accurately reflects the data provided by Progress in response to Staff Interrogatory Number 122?

A Yes, ma'am.

Q And would you agree that the information in the third column, Levy 1 only, accurately reflects the data that Progress provided in response to Staff Interrogatory Number 28?

A Yes, ma'am.

Q Earlier we discussed that Levy Unit 1 will be coming in service in 2016, so let's look specifically at the year 2016. Moving across this chart, moving from left to right, it appears that the rate impact decreases specifically from 2312 with Levy full ownership, Levy 1 and 2 full ownership, to 1951 with 80 percent ownership, to 1435 with Levy 1 only, is that correct?

A Yes, ma'am, it is.

Q And looking specifically at the year 2040, it appears as if the long-term savings also decrease from 2864 -- negative 2864 for Levy 1 and 2, to 2175 for 80 percent ownership, and 1348 for Levy 1 only, is that correct?

A Yes, ma'am.

Q Based on this chart alone and the information that

Progress provided in response to these interrogatories, there appears to be at least two options available to Progress to enable it to mitigate the rate impact of Levy 1 and 2, is that correct?

A I don't understand that, ma'am.

Q Okay. Let's try this. In 2016, we looked at the different scenarios of ownership. Full ownership, 80 percent ownership, and only Levy 1, and you stated that the rate impact decreases?

A Uh-huh.

Q It appears as if there are at least two options, meaning Levy 1 and 2 with joint ownership, or only putting in Levy Unit 1 as a way to mitigate the rate impact to its customers.

A I would not agree with that. Both Levy 1 and 2 at full ownership obviously provide significant savings to the customers, so there are three scenarios here, all of which are viable scenarios. Well, excuse me, Levy 1 alone is not a viable scenario, but Levy 1 and 2 provide the most cost-effective savings.

Q How about in the long-term benefits, what provides the most cost-effective savings when you are looking at the long-term benefits?

A Levy 1 and 2 full ownership.

Q And why is that?

A Because all of the savings that result from fuel or offset from cost from carbon are brought back to the ratepayer.

MS. FLEMING: Thank you.

We have no further questions.

CHAIRMAN CARTER: Thank you, staff.

Commissioners. Commissioner Argenziano, you're recognized.

COMMISSIONER ARGENZIANO: Thank you. A little bit of a different perspective on need. Going back, I guess, it's 2,200 megawatts of base load energy that you need, is that correct?

THE WITNESS: Yes, ma'am.

COMMISSIONER ARGENZIANO: And I guess that what you would base that on is the increased customer forecast for the future?

THE WITNESS: Yes, ma'am.

COMMISSIONER ARGENZIANO: And you use the University of Florida's Florida Population Studies Bulletin Number 144?

THE WITNESS: We used the BEBR report, and our load forecasters take that report and they analyze it for our load-specific territories.

COMMISSIONER ARGENZIANO: Okay. And in that report -- the report is dated February 2006.

THE WITNESS: We used 2007 BEBR data.

COMMISSIONER ARGENZIANO: Okay. But the Florida

Population Studies Bulletin Number 144, was that 2006?

THE WITNESS: I don't know the answer to that. I know we used 2007 BEBR data within our load forecast for this filing. I think Florida Power --

COMMISSIONER ARGENZIANO: In your need study -- let me see where I have it. Hang on one second. Progress Energy Ten-Year Site Plan of April 2007, I guess, on Page 2-23.

THE WITNESS: For the 2007 Ten-Year Site Plan, yes, ma'am, that's correct.

COMMISSIONER ARGENZIANO: But I guess what I want to know is in that bulletin, I think that bulletin indicated decreasing populations over the historic ten-year period?

THE WITNESS: Yes, ma'am, there is a reduction in growth in that document.

COMMISSIONER ARGENZIANO: And, of course, you took that into consideration, but still came up with the 2,200 is what was needed. Not just for that customer, but also for industrial use.

THE WITNESS: Yes, ma'am.

COMMISSIONER ARGENZIANO: And I think some of the industrial usage will be the mining in PEF's area?

THE WITNESS: We did include all of -- we included the reductions that were specific to that report, yes, ma'am.

COMMISSIONER ARGENZIANO: Okay. And I guess the 2006 -- what I'm concerned with is between 2006 and now the

decrease in population may have increased, and I don't know if you have since then took a second look at that.

THE WITNESS: We included two adjustments to our forecast during the time frame we were doing the studies, and we reduced our forecast approximately 200 megawatts during that time frame. If I could refer you to a graph here that staff provided. I don't want to muddy the water. I want to provide some good information to you.

COMMISSIONER ARGENZIANO: Sure.

THE WITNESS: As we received the forecasts and we go back and we run the studies and the scenarios to drive the overall analysis of what type of power plant is needed.

COMMISSIONER ARGENZIANO: Uh-huh.

THE WITNESS: I believe it's the second page of the -- it's the fuel diversity comparison that staff provided. If you add nuclear and coal in 2006, those percentages, the 14 percent for nuclear and the coal, the 43 percent, that adds up to about 57 percent of base load. And if you look at 2018 in the time frame, if you add in Levy 1 and 2, it's still at around that 57 or 58 percent. So what it is doing is it is balancing that base load. The growth of the system continues somewhat, and it continues to go up. I think the cover page of one of the documents that staff provided me said we would be adding a city the size of Tampa every year for the foreseeable future in Florida, and that was including some analyses that

apparently the BEBR was doing to update their study. So, growth continues.

These numbers show that we are balancing not only our fuel diversity, but we are balancing the base load generation to meet that exact requirement of base load. So there is no specific reduction in base load relative or by itself with the economic changes that we're experiencing. We still are growing all three bands of generation need, base load, intermediate, and peaking.

COMMISSIONER ARGENZIANO: Right. And that is due to the increase in the customer forecast?

THE WITNESS: Yes, ma'am.

COMMISSIONER ARGENZIANO: And that's why I was asking if it had updated since the 2006, even though I still see people are still moving in, it is not like there is nobody -- it slowed down some and we don't know if it is going to pick up in the future. It's probably unpredictable with the way things are right now.

THE WITNESS: It is, ma'am, but we have noticed with Florida, and we had a downturn in the economy in 1990, we had a downtown in the economy in 2001, we continue to plan to a trend. And although our trend is slightly lower than what it used to be many years ago, we noticed in that 1990 downturn and the 2001 downturn that there was a very quick bounce back in demand. In other words, even though there was a slight one

year time frame of economic downturn, very quickly the population growth turned right back around and resumed its trend.

COMMISSIONER ARGENZIANO: Like maybe after a very cold winter?

THE WITNESS: Yes, ma'am. Or baby boomers retiring and wanting to move to Orlando.

COMMISSIONER ARGENZIANO: Right. And, I guess, what I was getting at with the mining is because the mining industry kind of has been dwindling, and I think Progress has a lot of mines, four or five mines in its area, I think. It may be more, but the ones I'm thinking about from my old Senate District, and I guess that as the overseas commodities start doing a little better as they appear to be, that is going to increase farming on our end and increase fertilizer production which means the industrial part of the usage of electric is going to go up. So that is accounted for because while the population may be going down, we may be looking at a different surge in use of electric.

THE WITNESS: Yes, ma'am.

COMMISSIONER ARGENZIANO: And I was trying to -- basically, just really wanted to find out if the numbers had been adjusted and -- not adjusted, I mean looked at since 2006.

THE WITNESS: Yes, ma'am, and we have.

COMMISSIONER ARGENZIANO: Thank you very much.

THE WITNESS: You're welcome.

CHAIRMAN CARTER: Commissioner Argenziano, anything further?

COMMISSIONER ARGENZIANO: I'm done. Thank you.

CHAIRMAN CARTER: Commissioner Skop, you're recognized, sir.

COMMISSIONER SKOP: Thank you, Mr. Chairman.

And I just have a few questions for Mr. Crisp, and they pertain to the JBC-1 need study. And, first, I'd like to also thank our staff, Ms. Fleming, for the excellent job that you did in rounding out the record. And to that point, I would like to take a few minutes to also further develop for the record some of the points that were brought up by staff.

If we could please turn to Exhibit Table 10 on Page 85, and then also Figure 5 on Page 54, and I'll also be discussing Figure 6 on Page 57, and Exhibit Number 72 that just was provided to us. I'll give everyone a brief moment to familiarize.

CHAIRMAN CARTER: Restate those, Commissioner.

COMMISSIONER SKOP: I'm trying to go slow.

CHAIRMAN CARTER: I got Page 85. I marked that one. What was the next one?

COMMISSIONER SKOP: Page 85 for Table 10, which is the sensitivity analysis.

CHAIRMAN CARTER: Page 85, Table 10.

COMMISSIONER SKOP: Page 54, Figure 5.

CHAIRMAN CARTER: Page 54, Figure 5. Okay.

COMMISSIONER SKOP: And that would be the fuel needs forecast.

CHAIRMAN CARTER: Okay, sir.

COMMISSIONER SKOP: And also Figure 6 on Page 57.

CHAIRMAN CARTER: Page 57, Figure 6. Okay.

COMMISSIONER SKOP: And then, finally, I guess, based on what came up with the Exhibit 72 that staff discussed that, I guess, will be likely entered into the record, the revised sensitivity analysis that -- I think Ms. Fleming would like to say something.

MS. FLEMING: For clarification, are you referring to the blue handout?

COMMISSIONER SKOP: Yes.

MS. FLEMING: This one was not -- this is part of the Staff Composite Exhibit Number 13, so we could just refer to it as the blue handout.

COMMISSIONER SKOP: Okay. I'm sorry, the blue handout.

CHAIRMAN CARTER: We'll go with the blue handout.

COMMISSIONER SKOP: Okay.

CHAIRMAN CARTER: Commissioner, you're recognized.

COMMISSIONER SKOP: Thank you, sir.

So with that in mind, and to Mr. Crisp, just a few

quick questions. First, are you generally familiar with the natural gas spot market prices at the Henry Hub and also NYMEX natural gas future market prices?

THE WITNESS: Generally, yes, sir.

COMMISSIONER SKOP: And based on your knowledge, would it be fair to say that last week's Henry Hub spot price was in excess of $11.50 per MMbtu?

THE WITNESS: Yes, sir.

COMMISSIONER SKOP: Okay. In that same regard, would it also be fair to say that last week's NYMEX future contract for June delivery of natural gas was in excess of $11.50 per MMbtu?

THE WITNESS: Yes, sir.

COMMISSIONER SKOP: And in that same line of questioning, would it also be fair to say that natural gas prices have risen over 55 percent year-to-date?

THE WITNESS: Yes, sir, it is.

COMMISSIONER SKOP: And moving along, in your opinion based upon -- or in your opinion would it be reasonable to assume that additional migration to cleaner forms of power generation, such as natural gas, would cause additional upward price pressure on natural gas prices?

THE WITNESS: Yes, sir, that's correct.

COMMISSIONER SKOP: If I could, please, turn your attention to Figure 5 on Page 54, which has the natural gas low

forecast, the mid forecast, and the high forecast.

THE WITNESS: Yes, sir, I'm there.

COMMISSIONER SKOP: Based on your direct testimony that you just gave, would you agree that the current prices of natural gas, both the spot and the futures, are well in excess of the load forecast?

THE WITNESS: Yes, sir.

COMMISSIONER SKOP: And would you also agree that they are in excess in terms of near-term years of the mid gas forecast?

THE WITNESS: Yes, sir.

COMMISSIONER SKOP: Okay. But on page -- and if I could please refer you back to Figure 6 on Page 57. Would it be correct to assume that the natural gas mid forecast was used in the sensitivity or as part of the sensitivity analysis?

THE WITNESS: Yes, sir.

COMMISSIONER SKOP: Finally, moving back to Table 10 on Page 85. Putting this in context, if the fuel forecast for the low fuel forecast, again based on the current prices of natural gas, seems to be in excess of the numbers that were used for that sensitivity analysis, is that correct?

THE WITNESS: Yes, sir.

COMMISSIONER SKOP: And with respect to the mid fuel reference forecast, there is numerous pending legislation that no CO2 scenario is unlikely in your opinion?

THE WITNESS: That's correct.

COMMISSIONER SKOP: And so that would leave us with the Bingaman-Specter CO2 case, and given the price of natural gas currently, it is in excess of the mid fuel forecast, in those range of sensitivities only the Bingaman-Specter CO2 case would show that the nuclear option was not the most cost-effective?

THE WITNESS: Yes, sir, that's correct.

COMMISSIONER SKOP: Okay. And that cost in 2007 in millions would just be a net present value of $343 million, is that correct?

THE WITNESS: Yes, sir.

COMMISSIONER SKOP: Okay. And then moving forward to staff's composite exhibit, which I think I have the blue sheet, where I guess in your analysis they had eliminated some of the options. And, again, that's why I took this opportunity to try and correlate that. Because, again, when I first saw the staff composite exhibit I was trying to draw that correlation. But in terms of rationalizing it, it seems like they have eliminated it based upon, I guess you had mentioned -- I thought I heard that one of the other need determinations had taken a similar approach. But more holistically, I guess, what I was looking at is that to me the low fuel reference forecast based on your testimony would seem to be -- I want to choose my words carefully here -- would seem to be questionable given the

current state of natural gas prices during 2008 and also last year.

THE WITNESS: I would agree with that.

COMMISSIONER SKOP: All right. Thank you.

CHAIRMAN CARTER: Commissioner Argenziano.

COMMISSIONER ARGENZIANO: I forgot to ask something that is part of this and it is cost-effective, the word cost-effective, because when we hear from the average person out there on issues that come before us such as this one, some of them know that cost-effectiveness is a large component and is a statutory component, also. And I'm not sure you can answer this, and I don't mean to -- I'm not trying to set you up in any way. And, staff, tell me if it's not supposed to be asked, but I'm trying to get an answer to when let's say a senior citizen comes up and says I understand that the statute requires this to be cost-effective or whatever you are looking at, the cost-effectiveness of it, and then they say, well, I have to pay up front, and I'll be dead by the time -- or maybe, it could be, hopefully not, but they ask about the cost-effectiveness to them. And I don't know if that is included when you are working on cost-effectiveness for the overall program.

And I'm not sure how to answer them, and maybe at some point staff can help me do that, too. But that is a question that I've gotten several times, how is it

cost-effective for me, the person who won't be here or may not be here when that plant is done. And I don't know if you even look at that or you can.

THE WITNESS: From the overall cost-effective analysis we do look at the life-cycle costs. So I think the one point to bring back to those ratepayers and to previous discussions point is high fuel costs continue to rise. Natural gas continues to rise. If we were to go to that gas solution, it brings that crossover point, that point of impact where a customer starts to save money closer in. So, as you have seen the natural gas prices and coal prices continue to climb, it makes the analysis more and more and more cost-effective. And it makes the point at which the customers actually start to see an offset to those rates much closer in in time frame. And I think there is one number to take back to them, and that's once those units start up it's a billion dollars a year in fuel savings.

COMMISSIONER ARGENZIANO: Thank you. I appreciate that.

THE WITNESS: You're welcome.

CHAIRMAN CARTER: Thank you, Commissioner.

Commissioner Skop.

COMMISSIONER SKOP: Thank you, Mr. Chair.

Just one follow-up question on the staff composite exhibit. In those sensitivities that were ran in terms of --

let me count briefly. I guess the eight sensitivities on the revised staff composite exhibit, in only one instance of those eight would nuclear not be the most cost-effective option, is that correct?

THE WITNESS: That's correct.

COMMISSIONER SKOP: Thank you.

CHAIRMAN CARTER: Thank you.

Commissioners, anything further? Mr. Walls.

MR. WALLS: I believe I have only one follow-up question.

REDIRECT EXAMINATION

BY MR. WALLS:

Q Mr. Crisp, if you could turn to Table 11 in the need study on Page 97. I believe you were asked questions by Mr. Brew about whether you had included any delays in your analysis of the potential capex increases, and you had said no. Did you place any limits on the cause of the cost increases that you looked at?

A We looked at the 5, 15, and 25 percent analyses for potential cost increases.

Q And so was that for any reason for those cost increases?

A Any and all reasons. Any and all potential reasons for cost increases.

MR. WALLS: That's all I have.

CHAIRMAN CARTER: Thank you.

Commissioners, we have got before us Exhibits 44 through 52. Any objections? No objections. Show it done. We will enter those in, Exhibits 44 through 52. Staff recommends exhibits that have been marked for identification, Staff Exhibit Number 71 and the late-filed exhibit would be --

MS. FLEMING: 72, Late-filed Exhibit 72.

CHAIRMAN CARTER: 72, okay.

MS. FLEMING: We are not asking that Exhibit 71 be moved into the record.

CHAIRMAN CARTER: Okay. We will just mark that as a no. So we will go to Exhibit 72. Mr. Walls.

MR. WALLS: No objection.

CHAIRMAN CARTER: Okay. Show it done.

(Exhibit Numbers 44 through 52 and Number 72 admitted into the record.)

CHAIRMAN CARTER: And do we need this witness for any further questions? Any of the parties?

Mr. Crisp, thank you so much. You may be excused.

Commissioners, we've been a loyal bunch of troopers today, and I don't want you guys to get hungry and restless, so let's do this, and give staff an opportunity to kind of put things together so we can go through our second phase for the rest of the afternoon. I'm looking at -- Commissioner McMurrian, you're good with numbers, a suggestion for a return

after lunch? Did you say 1:15, is that what you said? I can't hear you.

Oh, staff, you guys have got to eat, too. Let's do this, Commissioners. Let's just say 2:00 o'clock and give staff a chance to eat, too, because they will be working. So we are on recess until 2:00 o'clock.

(Transcript continues in sequence with Volume 6.)

STATE OF FLORIDA)

: CERTIFICATE OF REPORTER

COUNTY OF LEON)

I, JANE FAUROT, RPR, Chief, Hearing Reporter Services Section, FPSC Division of Commission Clerk, do hereby certify that the foregoing proceeding was heard at the time and place herein stated.

IT IS FURTHER CERTIFIED that I stenographically reported the said proceedings; that the same has been transcribed under my direct supervision; and that this transcript constitutes a true transcription of my notes of said proceedings.

I FURTHER CERTIFY that I am not a relative, employee, attorney or counsel of any of the parties, nor am I a relative or employee of any of the parties' attorney or counsel connected with the action, nor am I financially interested in the action.

DATED THIS 23rd day of May, 2008.

JANE FAUROT, RPR
Official FPSC Hearings Reporter
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