HOPPING GREEN SAMS & SMITH
PROFESSIONAL ASSOCIATION
ATTORNEYS AND COUNSELORS
123 SOUTH CALHOUN STREET
POST OFFICE BOX 6526
TALLAHASSEE, FLORIDA 32314
(850) 222-7500
FAX (850) 224-8551
FAX (850) 425-3415
www.hgss.com

JAMES S. ALVES
BRIAN H. BIBEAU
ROCHELLE A. BIRNBAUM
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OF COUNSEL
ELIZABETH C. BOWMAN

Writer's Direct Dial No.
(850) 425-2313

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December 18, 2000

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RECORDS AND REPORTING

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Blanca Bayó
Director, Records and Reporting
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, FL 32399

Re: JEA Need for Power -- Docket No. 001703-EM

Dear Ms. Bayó:

Enclosed for filing on behalf of JEA are:

1) the original and fifteen copies of a notebook containing the prefiled direct testimony of the following witnesses:

Randy Boswell
Charles Bond
Mary Guyton-Baker
Robert Reedy
Bret L. Griffin
John Henry David
Myron Rollins

APP
CAF
CMP 1
COM 3 for
CTR
ECR 3
LEG 1
OPC
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2) the original and fifteen copies of a list of changes to JEA's Need for Power Application which has been designated as Exhibit No. ___ (JEA-2).

Please stamp and return the extra copy of these documents.

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Exh. JEA-2
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By copy of this letter, one copy of each of these documents is being provided directly to Ms. Hart and Mr. Haff. If you have any questions, please call.

Very truly yours,

Richard D. Melson

RDM/mee
Enclosures

cc: Ms. Hart
Mr. Haff
Mr. Bond
Mr. Rollins
Mr. Groninger

Public Service Commission
PREFILED TESTIMONY AND EXHIBITS

JEA

Building Community

JEA Brandy Branch Combined Cycle Conversion

BLACK & VEATCH

BEFORE THE PUBLIC SERVICE COMMISSION

DIRECT TESTIMONY OF RANDY BOSWELL

ON BEHALF OF JEA

DOCKET NO. 001703-EM

December 18, 2000

Q. Please state your name and address.

A. My name is Randy Boswell. My business address is 21 West Church Street, Jacksonville, Florida 32202.

Q. By whom are you employed and in what capacity?

A. I am employed by JEA. My current position is Vice President of Production Services.

Q. Please describe your responsibilities in that position.

A. My responsibilities include the overall management of generation expansion planning efforts for JEA and the management of JEA's wholesale full and partial requirements power supply contracts. My responsibilities also include the management of all fuel procurement activities for the JEA system.

Q. Please state your professional experience and educational background.

A. I received a Bachelors degree in Electrical Engineering from Georgia Institute of Technology. I am a registered Professional Engineer in the State of Florida.

I have been employed by JEA for over 27 years. During that time I have held the following positions in the organization: Engineer in the Transmission and Substation Division, Engineer in the System Planning Division, Division Chief of Energy Dispatch, and Director of System Operations. I assumed my current position as Vice President of Production Services in 1995.

Q. What is the purpose of your testimony in this proceeding?

A. The purpose of my testimony is to provide an overview of JEA and the Brandy Branch Combined Cycle Conversion Project (the "Brandy Branch Conversion"); to discuss the strategic factors taken into consideration when deciding to pursue the project; and to discuss JEA's plans for financing the project.

Q. Are there sections of the Need for Power Application identified as Exhibit ___ (JEA-1) that were prepared by you or under your direct supervision?

A. Yes. Sections 1, 3, 15 and 16 were prepared by me or under my supervision.

Q. Are you adopting these sections as part of your testimony?

A. Yes.

Q. Are there any corrections to these sections?

A. Yes. Minor corrections to Sections 1 and 3 are shown in Exhibit _____ (JEA-2).

Q. Please describe JEA.

A. JEA (formerly known as the Jacksonville Electric Authority) is the largest municipal utility in Florida. We serve approximately 350,000 electric customers in Duval and surrounding counties.

The total net generating capability of JEA's system is 2,708 MW (summer). In addition, three simple cycle combustion turbine units are under construction at the Brandy Branch Generating Station ("Brandy Branch") and Northside Units 1 and 2 are being repowered to burn solid fuel.

Q. Please describe the project for which JEA is seeking a determination of need in this proceeding.

A. We are seeking a determination of need for the addition of a 197 MW steam turbine generator and related facilities that will be installed to convert two of the Brandy Branch combustion turbines to combined cycle operation. The planned commercial operation date for the project is June 2004.

In a combined cycle mode, waste heat from the combustion turbines is used to power the new steam turbine generator. The conversion to combined cycle operation thus enables JEA to generate additional electricity for the same amount of fuel, and significantly increases the overall efficiency of the units.

Q. What is the primary driver of the need for additional capacity in 2004?

A. The need for additional capacity in 2004 results from continuing load growth on JEA's system. With this growth, we need additional capacity resources by 2004 in order to maintain a minimum 15% reserve margin.

Q. Please briefly describe the process that led to the selection of the Brandy Branch Conversion as the most cost-effective alternative to meet the 2004 capacity need.

A. The selection of the Brandy Branch Conversion is the result of our on-going generation planning processes. Our 1997 Integrated Resource Plan (IRP) showed a significant increase in JEA's peaking power requirements starting in the 2000 to 2001 time frame. The 1997 IRP concluded that new simple cycle combustion turbines would provide the most economic means to meet those peaking requirements. As a result, JEA installed one combustion turbine at its existing Kennedy Generating Station and is currently installing three combustion turbines at the new Brandy Branch site. Two of the Brandy Branch units are scheduled for completion in May 2001 and the final unit should be in commercial operation by the end of 2001.

The Brandy Branch site was designed with the future in mind. We provided sufficient infrastructure, including transmission and gas pipeline capacity, to support either the addition of a fourth simple cycle combustion turbine or the addition of a steam turbine unit to convert two of the combustion turbines to combined cycle operation.

Q. What was the next step in the decision process?

A. In its 2000 Ten Year Site Plan (TYSP) study, JEA presented its latest evaluation of the future capacity needs of its electric system. This evaluation indicated that additional capacity would be needed to meet system reserve requirements beginning in the year 2004.

JEA undertook an extensive set of analyses to select the most cost-effective alternative for meeting this need. These analyses showed that the Brandy Branch Conversion option is the most cost-effective alternative available to meet our 2004 capacity need. It provides $17 million in Present Worth Revenue Requirement (PWRR) savings over 20 years compared to the best alternative other than the Brandy Branch Conversion. The project was formally approved by JEA's Board on October 17, 2000, and the project has been included in JEA's capital budget.

Other witnesses will provide more detail about JEA's generation planning process, including the wide range of generating technologies that were considered, the sensitivity studies that were performed to ensure that the Brandy Branch Conversion performs well under a variety of generation planning assumptions, and the underlying load and fuel forecasts.

Q. What role do strategic considerations play in the selection of the most cost-effective capacity resource?

A. JEA strives to provide its customers with the lowest rates they can achieve while maintaining sound operating principles and environmentally clean units. This means that in addition to evaluating the cost of any capacity addition, we

must consider a variety of other factors to determine whether the least-cost option is in fact our preferred alternative. As I discuss below, in this case a variety of qualitative factors all support the selection of the Brandy Branch Conversion as our most cost-effective capacity addition.

Q. Please summarize the major strategic factors that were considered in the selection of the Brandy Branch Conversion project.

A. One major consideration is fuel diversity on JEA's system. With our ownership interest in the St. Johns River Power Park and Scherer Unit 4, unit power purchases from Southern Company, and the repowering of Northside Units 1 and 2 to burn petroleum coke / coal, JEA is significantly dependent on solid fuel to meet its base load generating requirements. The addition of efficient natural gas fired units that can operate as base load or intermediate generation provides a needed measure of fuel diversity to our system.

The addition of JEA-owned capacity, rather than increased reliance on purchased power, provides two strategic benefits. By controlling the generating capacity, we can maximize operating flexibility by dispatching the units as needed, scheduling maintenance when it best meets our system needs, and taking other steps that increase the value of the capacity. By locating the additional capacity on JEA's transmission system close to the load, we eliminate the risk of transmission issues beyond our control and enhance the certainty of energy delivery.

The use of an existing site minimizes environmental impacts and reduces the time and effort required for licensing. The low level of emissions from the Brandy Branch Conversion gives some protection from the risk of future environmental regulations. Because the conversion provides additional capacity without burning additional fuel, it enables JEA to reduce overall emissions by displacing energy that would otherwise be generated by less efficient units with higher emission rates.

Q. Are there any other strategic factors that favor the Brandy Branch Conversion?

A. Yes. Because infrastructure such as transmission interconnections and a natural gas pipeline are already in place at Brandy Branch, JEA not only avoids the cost of those facilities, but also eliminates the time that would be required to extend such facilities to a new (greenfield) site. Also, since the combustion turbines are already on site at Brandy Branch, JEA avoids the delivery delays that would be associated with construction of similar capacity at a greenfield site. Given our need for capacity by 2004, the ability to minimize the construction schedule is an important consideration.

Finally, given the uncertainty in the merchant power market as the result of the Florida Supreme Court's decision in the Duke case, a JEA-owned and operated project eliminates the risks associated with attempting to license a non-utility owned project.

Q. Are there any other economic benefits from the Brandy Branch Conversion that have not been directly reflected in the economic analysis?

A. Yes. JEA and three other utilities that are constructing combined cycle units based on General Electric combustion turbines are in the process of forming an alliance to minimize their cost of construction, ownership and operation of these units. This alliance, which we call Power Partners, will develop a standardized design for the 2 by 1 combined cycle plants, share project management resources, develop and share common training materials, and share spare parts inventory. We expect that this initiative will result in savings in construction, operation and maintenance costs for all of the Power Partners. In addition, through our combined buying power we hope to achieve some capital cost savings as well.

Q. How does JEA intend to finance the construction of the Brandy Branch Conversion?

A. No final decision has been made as to the method of financing. As with other recent projects, JEA will assess whether the project should be financed with long-term debt, short-term debt, internally generated funds, or a combination of these sources. For example, the Brandy Branch combustion turbines were financed with a combination of internally generated funds and variable rate debt.

As a municipality, JEA could finance the project in whole or in part with tax-free debt. There are, however, certain restrictions on the use of capacity funded with tax-exempt sources. With the uncertainty in the industry relative

to deregulation, it may be prudent to use taxable bonds. If deregulation were to occur and JEA were to lose some of its customer base, JEA would then be able to sell capacity from Brandy Branch without any restrictions.

Q. Does JEA have the capability to finance the project with long term debt if required?

A. Yes. JEA is financially very healthy. Our debt service coverage ratio for 2000 is 2.43 and we have strong credit ratings on all of our outstanding debt. In addition, JEA's electric rates in all customer classes continue to be significantly lower than both the Florida average and the Unites States average. In light of this financial health, JEA has the capacity to finance the project entirely through long-term debt if that proves to be the most appropriate option.

Q. In the absence of a final decision about how JEA will fund the Brandy Branch Conversion, what assumption about cost of money was made in the economic analyses?

A. In an effort to be conservative, our base case analysis assumed the use of 100% taxable debt. If we choose to use tax exempt financing, the cost of the project would be reduced even further.

Q. Are you confident that the Brandy Branch Conversion project is the most cost-effective alternative available to JEA to meet its 2004 capacity need?

A Yes. As I stated earlier, the Brandy Branch Conversion is our least cost option, with $17 million PWRR savings compared to the next best alternative. While they did not change the final decision, the strategic considerations

outlined above support the selection of that project as the most cost-effective addition to meet our need. With its relatively low cost, this project will be a good investment for JEA and should provide needed capacity at a reasonable cost for many years into the future.

Q. Does this conclude your testimony?

A. Yes.

BEFORE THE PUBLIC SERVICE COMMISSION

DIRECT TESTIMONY OF CHARLES BOND

ON BEHALF OF JEA

DOCKET NO. 001703-EM

DECEMBER 18, 2000

Q. Please state your name and address.

A. My name is Charles Bond. My business address is 21 West Church Street, Jacksonville, Florida 32202.

Q. By whom are you employed and in what capacity?

A. I am employed by JEA. My current position is the Manager of Capacity Planning.

Q. Please describe your responsibilities in your current position.

A. As the Manager of Capacity Planning, I am responsible for capacity planning for JEA's electric system including data collection for the JEA Production Business Unit's monthly electric operating reports; preparation of the annual Ten Year Site Plan for the Florida Public Service Commission; seasonal and long term electric capacity acquisitions through The Energy Authority; load forecasting; economic analysis modeling to support major capital projects such as the Northside Units 1 & 2 Repowering and the Brandy Branch Combustion Turbine and Combined Cycle Conversion Projects; and modeling to support the JEA's annual fiscal budget preparation.

Q. Please state your professional experience and educational background.

A I have a Bachelor of Science Degree in Civil Engineering from Clemson University. I am a Registered Professional Engineer in the State of Florida.

I have been employed by JEA since 1982. I began my career with the utility as a Project Engineer in the Power Engineering Division. In 1984, I assumed the position of Construction Manager in the Power Engineering Division where I was involved in projects involving our large steam powered units. In 1988, I became a Project Manager where I was responsible for project and construction management on various power plant projects. In 1997, I was assigned as the Senior Project Manager for the purchase and installation of four combustion turbines at Kennedy and Brandy Branch. In 1999, I assumed my current position as Manager of Capacity Planning for JEA.

Q. What is the purpose of your testimony in this proceeding?

A. The purpose of my testimony is to explain the reliability criteria used by JEA for generation resource planning purposes and the impact on JEA if the Brandy Branch Conversion is delayed. I will also explain why JEA believes that its decision not to issue a Request for Proposals (RFP) was prudent. Finally, I will provide an overview of JEA's demand side management (DSM) programs.

Q. Are there sections of the Need for Power Application identified as Exhibit ___ (JEA-1) that were prepared by you or under your direct supervision?

A. Yes. Sections 2, 8.1, 9, 10, and 17 were prepared by me or under my supervision.

Q. Are you adopting these sections as part of your testimony?

A. Yes. I am.

Q. Are there any corrections to these sections?

A. Yes. Minor corrections to these sections are included in the errata sheet identified as Exhibit ___ (JEA-2).

Q. Please explain the concept of a "reliability criteria" and why it is important for planning purposes.

A. The mission of JEA is to provide safe, adequate and reliable power to its customers at the lowest reasonable cost in a manner consistent with minimizing environmental impacts. The reliability criteria is associated with the "adequate and reliable power" supply portion of the utility's mission.

To serve native load, a utility must have firm capacity resources in excess of its expected firm peak demand. This margin of capacity over firm peak load is needed because factors affecting either demand or supply could cause load to go unserved if a utility maintained only enough resources to meet its expected firm peak demand. On the demand side, higher than expected demand can occur due to a greater number of customers on the system, greater than expected energy usage per customer, extreme weather conditions, or lower than anticipated demand side measure impacts. On the supply side, generation capacity could be unavailable due to factors such as forced or scheduled outages on generation equipment, unanticipated transmission constraints limiting power imports, generator deratings

due to equipment failures, and unanticipated constraints on fuel supplies or water supplies.

Due to the uncertainties involved with projecting both demand and available supply, utilities maintain a "margin" of firm capacity resources over and above the anticipated peak level of firm demand. Traditionally in the industry, reserve levels of 15 percent are typical, with some utilities having adopted an even higher reserve margin. The appropriate level of reserve margin varies by utility, but generally, the smaller the utility and the fewer number of interconnections with other utilities, the greater is the reserve margin.

Q. What is the target reserve margin adopted by JEA?

A. JEA has adopted a 15 percent reserve margin level. This is based on the work of the Florida Reliability Coordinating Council which has found that a planned reserve margin criterion of 15 percent is adequate for Peninsular Florida. The 15 percent reserve margin has also been established as a minimum planned reserve margin in Rule 25-6.035(1) Florida Administrative Code. Therefore, JEA believes this to be the minimum level it should maintain, consistent with prudent planning and Florida regulations.

Q. How does the need to meet this reliability criteria impact the timing and need for additional capacity resources for JEA?

A. In order to maintain a 15 percent reserve margin requirement, JEA will need 261 MW of additional capacity resources in the winter of 2002 while Northside Unit 1 is out of service for repowering. Because there is insufficient time to meet this

2002 need with new JEA system capacity resources, these capacity needs will be met though seasonal power purchases. Also, this temporary need disappears in 2003 as the repowered Northside Unit 1 is returned to service. However, due to load growth, if no additional capacity is added to the system beyond the currently committed units, a permanent need for additional capacity would arise in 2004 and increase thereafter. In 2004, there would be a summer deficit of 40 MW, increasing to 135 MW in the summer of 2005. Looking at the winter deficit, if no capacity is added beyond the currently committed units, a deficit of 58 MW would arise in the winter of 2004/05 and increase to 169 MW the following year. By the end of the planning horizon in winter 2018/19, JEA will require 2,002 MW of additional capacity to maintain its required reserve margin.

Q. What would be the consequences of a significant delay or non-approval of the Brandy Branch Conversion?

A. Mary Guyton-Baker will testify that non-approval would mean that JEA customers would be denied the most cost-effective power supply. A significant delay would mean that from a reliability perspective, JEA's reserves would fall below the minimum reserve level of 15% in 2004. While off-system purchases could perhaps be made to maintain the target reserve margin, there is no assurance that the capacity would be available, or that it would be cost-effective for JEA's ratepayers.

Q. In your position with JEA, were you involved in the decision not to issue an RFP for capacity to meet the 2004 need?

A. Yes.

Q. What was the basis of this decision?

A. Rule 25-22.082 of the Florida Administrative Code exempts municipal utilities from being required to conduct a RFP process when construction a new generating unit. JEA is nevertheless intent on providing service to its ratepayers at the lowest possible cost consistent with maintaining reliability and minimizing environmental impacts. JEA would have conducted an RFP process if it believed that there was a realistic chance of securing capacity resources that are more cost-effective than the Brandy Branch Conversion. The decision not to issue an RFP was made based on a number of factors which are summarized below.

JEA has had discussions with developers regarding competitively-procured capacity and has also monitored prices paid for power by other utilities undergoing a competitive bidding process. For example, the recent Panda proposal to Florida Power Corporation for gas-fired combined cycle capacity contained demand charges of $6.75/kW-month and $9.10/kW-month, which are roughly 50 to 100 percent higher than the Brandy Branch Combined Cycle demand cost, which is estimated to be $4.42/kW-month.

One reason for the decided JEA cost advantage is that the combustion turbine units currently under construction at Brandy Branch were placed under contract in 1998, just prior to the significant run-up in price that continues in the combustion turbine market. The contract price for the Brandy Branch combustion turbines was approximately $30 million for each unit compared to a current price of $38 to $39 million.

In addition, there are significant site infrastructure savings associated with the Brandy Branch Conversion. The existing transmission lines, natural gas lateral, substation facilities, and other common facilities such as water and oil storage tanks, buildings for operation and maintenance, and water and wastewater treatment facilities required for the simple cycle combustion turbines will be utilized for the combined cycle plant, resulting in a cost savings.

Finally, while JEA has not made a final decision on the use of tax exempt financing, it has access to such funding. Because JEA conservatively assumed the use of taxable debt in its generation planning analyses, the potential cost savings from the use of tax exempt financing has not been quantified. Even without tax exempt financing, JEA has a lower overall cost of money than privately developed projects.

These cost advantages for the Brandy Branch Conversion make it extremely unlikely that an RFP process would produce any lower cost alternative.

Q. Were there any non-cost considerations in JEA's decision not to issue an RFP?

A. Yes. Another significant issue is the uncertainty regarding the merchant power market as the result of the Florida Supreme Court's ruling in the Duke Energy case. This uncertainty will likely postpone any combined cycle merchant plant development until after the 2020 Energy Study Commission makes recommendations and those recommendations are acted on by the Florida

Legislature. These legal issues cast uncertainty on any developer's ability to assure that generating capacity will be available in the time frame required to meet JEA's need.

Finally, JEA is part of The Energy Authority (TEA), along with five other municipal utilities. TEA is a wholesale marketing company that purchases all its members' wholesale purchase power requirements and markets all its members' excess power at wholesale. TEA is active in pursuing short and long-term power supply arrangements on behalf of its members. Mr. Reedy of TEA will testify regarding the market for purchased power.

Q. Has anything occurred since the decision not to issue an RFP was made that would lead you to change your mind about that decision?

A. No. We have seen no information to suggest that any lower cost resource is available to meet the long term reliability need that will be satisfied by the Brandy Branch Conversion.

Q. With regard to demand side management, does JEA currently have any Commission-established conservation goals?

A. No. In the 2000 conservation goals docket the Commission determined that there were no cost-effective conservation measures available to JEA and therefore did not establish goals.

Q. Does JEA nevertheless currently offer any conservation programs?

A. Yes. JEA offers a number of conservation programs that are either required by regulation (such as energy audits) or that JEA deems beneficial to the community as a whole (such as information and educational programs) despite the fact that they do not pass traditional cost-effectiveness tests. These programs are described in detail in Section 8.1 of the Need for Power Application, Exhibit ___ (JEA-1).

Q. How has JEA addressed the potential for additional demand side management to affect the need for, or timing of, the Brandy Branch Conversion.

A. An analysis performed by Black & Veatch supports JEA's conclusion that there are no cost-effective measures that would delay or avoid the need for the Brandy Branch Conversion. Mr. Rollins will testify to the details of that analysis.

Q. Does this conclude your testimony?

A. Yes.

BEFORE THE PUBLIC SERVICE COMMISSION

DIRECT TESTIMONY OF MARY GUYTON-BAKER

ON BEHALF OF JEA

DOCKET NO. 001703-EM

DECEMBER 18, 2000

Q. Please state your name and address.

A. My name is Mary Guyton-Baker. My business address is 21 West Church Street, Jacksonville, Florida 32202.

Q. By whom are you employed and in what capacity?

A. I am employed by JEA as an Engineer II in the capacity planning group.

Q. Please describe your responsibilities in that position.

A. I have been with JEA since 1987 and have worked in the area of Generation/Capacity Planning during that time. My primary responsibilities include running and maintaining the production costing simulation models for JEA. These models are used to identify the most cost-effective expansion plan for the utility and have identified the Brandy Branch Conversion as the best option for JEA ratepayers. I am also responsible for performing Integrated Resource Planning (IRP) studies, for the preparation of JEA's Ten Year Site Plan, and for various economic and financial studies for JEA. During my career, I have worked with a number of production costing programs including PROMOD, POWRSYM-Plus, PROSYM, and our current model, the Electric Generation Expansion Analysis System (EGEAS).

Q. Please state your educational background.

A. My educational background is in the engineering field. After receiving an Associate of Arts degree in pre-engineering from Polk Community College in 1983, I graduated with a Bachelor of Science degree in Industrial and Systems Engineering from the University of Florida in 1986. In 1987 and 1988, I took a course in Engineering Management offered by the University of South Florida through the University of North Florida in Jacksonville.

Q. What is the purpose of your testimony in this proceeding?

A. The purpose of my testimony is to explain the economic analysis undertaken by JEA which resulted in the identification of the Brandy Branch Conversion as the most cost-effective capacity resource option for JEA and its ratepayers.

Q. Are there sections of the Need for Power Application identified as Exhibit ____ (JEA-1) that were prepared by you or under your direct supervision?

A. Yes. Sections 13 and 14.

Q. Are you adopting these sections as part of your testimony?

A. Yes, I am.

Q. Are there any corrections to these sections?

A. Yes. Minor corrections to Section 14 are shown in Exhibit _____(JEA-2).

Q. Please describe the process for determining the least cost expansion plan.

A. Expansion planning analysis operates under the economic assumption that because consumers of electricity have scarce resources and a time value of money, they desire to have a safe, adequate, reliable, and environmentally compatible supply of electricity at the minimum possible cost when measured on a Present Worth Revenue Requirements, or PWRR basis.

The development of the least cost expansion plan is an iterative process. JEA uses generation expansion planning computer programs such as EGEAS in this process. EGEAS develops expansion plans in which capacity is added to the system on a year by year basis as needed to serve load and to meet the reserve margin requirements. Expansion plans are developed with various types and sizes of unit additions. Within EGEAS, this process is repeated thousands of times until all realistically feasible expansion plans are evaluated. The system variable costs and incremental fixed costs associated with these expansion plans are then calculated for each year, discounted to the base year, and summed. This results in a cumulative PWRR for each expansion plan. In EGEAS the least cost expansion plan is defined as the plan with the lowest cumulative PWRR.

Once the least cost expansion plan is identified, the first unit in that expansion plan is tentatively identified as the next generating unit addition. This least cost alternative is then evaluated in light of the utility's strategic considerations to determine if it is the most cost-effective alternative when all relevant factors are taken into account.

Q. Please provide more detail on how EGEAS performs its cost calculations.

A. To calculate the variable costs associated with serving load (fuel, variable O&M) EGEAS simulates the dispatch of capacity resources on a merit order (or economic dispatch) basis, while taking into account the characteristics of each unit such as net output, net plant heat rate, forced outage rates and scheduled maintenance requirements. It is also important to accurately estimate the fixed costs (capital and fixed O&M costs) of units under consideration. Once the fixed and variable costs associated with an option are derived for each year, these can be added together and discounted to estimate the net present value of serving load for each year in the planning horizon.

Q. Please describe JEA's planning horizon for evaluating the cost of various resource options.

A. Because of the future uncertainty involved in forecasting, the limited life of generating assets, and the average time that a ratepayer is a customer of a given utility system, it is customary to measure PWRR over a limited planning horizon, usually lasting 15 to 25 years into the future.

JEA uses a 20 year planning period. Therefore, from a cost perspective, JEA's objective is to identify the expansion plan that will minimize the cumulative PWRR over a 20 year planning horizon. Costs included in the analysis are system fuel costs and variable operating and maintenance costs; capital and fixed O&M costs for new units; and purchased power demand and energy costs.

Q. In addition to unit-specific cost and operating data, what other information and assumptions are input into EGEAS?

A. In addition to unit operating data, the inputs into EGEAS include the utility's reliability criteria, its load forecast and fuel forecasts over the planning horizon, and financial assumptions. Other witnesses will provide more detail to support these assumptions.

Q. What generating options did JEA evaluate in EGEAS for meeting its 2004 need?

A. We evaluated the Brandy Branch Conversion, simple cycle combustion turbines, greenfield combined cycle units, pulverized coal units, and atmospheric circulating fluidized bed units.

Q. How was this menu of generating alternatives selected?

A. It was selected through a two stage screening process that is discussed in detail by Mr. Rollins.

Q. What was the conclusion of the detailed economic analysis performed in EGEAS?

A. The conclusion of the detailed production costing analysis was that the Brandy Branch Conversion with commercial operation in 2004 is the most economical option available to meet the 15 percent reserve margin criteria. In fact, it is not until Plan No. 145 that EGEAS produces a plan with something other than the Brandy Branch Conversion as the first unit addition. On a net present value

basis, Plan No. 145 is over $17 million more costly than the least cost plan (Plan No. 1). Given the base case assumptions, the Brandy Branch Conversion in 2004 is clearly the first addition of the least cost plan for JEA.

Q. Given the many assumptions that are involved with forecasting future conditions, how can a utility be confident that it has actually identified the least cost option?

A. We address uncertainty in our expansion plans by modeling many alternative scenarios in which those assumptions subject to future uncertainty are changed, and a least cost plan under the newly created scenario is determined. In the JEA analysis, sensitivities were run for high and low energy forecasts; for high, low, and alternative fuel forecasts; for high and low net present value discount rates; and for a 20 percent reserve margin case.

Q. What were the results of those sensitivity analyses?

A. These analyses demonstrate the Brandy Branch Conversion in 2004 is very robust. In other words, it is the preferred alternative in most sensitivity simulations, including the high fuel price scenario, the alternative fuel price scenario, the low fuel price scenario, the high discount rate scenario, and the low discount rate scenario. In the low load growth scenario, the Brandy Branch Conversion was also the first unit to be added, although the timing was delayed until 2008.

An option other than the Brandy Branch Conversion was selected as the first unit addition only in the high load forecast scenario and the 20 percent reserve

margin scenario. Even in these two cases, the Brandy Branch Conversion becomes part of the least cost expansion plan in 2005 in the high load growth scenario and in 2013 in the 20 percent reserve margin scenario. It should be pointed out that in these two scenarios, the driving factor in selection of the first capacity addition was the need for more capacity to meet the reserve requirements than was provided by the Brandy Branch Conversion.

Q. What conclusions did you draw from this analysis?

A. Based on the results of the extensive screening analysis and production costing analysis, the Brandy Branch Conversion is the least cost option for JEA ratepayers under the most likely future conditions expected on the system. It is also the preferred addition in most of the alternative scenarios that may occur on the system. Therefore, based on the criteria and methods commonly used in the industry, I conclude that the Brandy Branch Conversion is the least-cost option for JEA ratepayers.

Q. Does this conclude your testimony?

A. Yes.

BEFORE THE PUBLIC SERVICE COMMISSION

DIRECT TESTIMONY OF ROBERT REEDY

ON BEHALF OF JEA

DOCKET NO. 001703-EM

DECEMBER 18, 2000

Q. Please state your name and address.

A. My name is Robert Reedy. My business address is 76 South Laura Street, Jacksonville, Florida.

Q. By whom are you employed and in what capacity?

A. I am employed by The Energy Authority (TEA) in Jacksonville, Florida. My current position is Marketing Manager.

Q. What is TEA?

A. TEA is a not-for-profit wholesale energy marketing company managing about 15,000 megawatts of publicly owned generation capacity nationwide. TEA's members consist of the following utilities.

- JEA
- MEAG Power (Municipal Electric Authority of Georgia)
- Santee Cooper (South Carolina Public Service Authority)
- Nebraska Public Power District
- Gainesville Regional Utilities
- City Utilities of Springfield (Springfield, Missouri)

In addition, TEA provides marketing services to several other publicly owned utilities including Kansas City Kansas Board of Public Utilities, Lafayette Utilities System (Lafayette, Louisiana) and Louisiana Electric Power Authority.

Q. What does TEA do?

A. TEA markets (buys and sells) all the wholesale power for its members.

Q. Please describe your responsibilities as Marketing Manager.

A. I am responsible for origination of long term wholesale power transactions for generating capacity nationwide. I am also responsible for development of relationships with potential alliance partners, and the client relationship with designated owners.

Q. Please state your professional experience and education background.

A. I have a Bachelors of Science and Masters of Science degree in Electrical Engineering, both from Auburn University. I also have an MBA from Florida Southern College.

I have spent the past two and one-half years at TEA where I have served as a Marketing Manager. As a result of my current position, I have a good understanding of the market for energy and capacity sales in the Southeastern United States and the area around and including the City of Jacksonville.

Prior to TEA, I worked for approximately 22 years for the Lakeland Department of Electric and Water Utilities (Lakeland). In my first assignments at Lakeland I served as an Electrical Engineer in the System Control and Relay Division, Manager of Engineering, and Director of the Engineering and Operations Group. My last assignment at Lakeland before joining TEA was as the Manager of the Wholesale Energy Business.

Q. What is the purpose of your testimony in this proceeding?

A. The purpose of my testimony is to provide my opinion as to whether the Brandy Branch Conversion is the most cost-effective alternative available to JEA. More specifically, I will provide my opinion as to whether JEA could have obtained more cost-effective purchase power through a Request for Proposal (RFP) process.

Q. In your opinion should JEA have issued an RFP before deciding to proceed with the Brandy Branch Conversion?

A. No. In my opinion, an RFP could not possibly have provided capacity and energy prices for purchased power at a lower cost than would be expected from the Brandy Branch Conversion.

Q. On what basis do you present that opinion?

A. I present my opinion on a number of bases. First, as Marketing Manager, I have access to many bids for buying and selling power. Next, TEA continuously develops forward pricing curves to use in power marketing.

Finally, I have a good general understanding of the cost of power and its pricing in the marketplace.

Q. Have you reviewed the projected costs and parameters in JEA's Need for Power Application for the Brandy Branch Conversion?

A. Yes. I believe that they are reasonable even though fuel prices, especially those for natural gas and oil, are currently different from those projected.

Q. Do the current natural gas and oil prices impact your opinion as to whether the Brandy Branch Conversion is the most cost-effective alternative?

A. No. Fuel prices are extremely volatile. To protect themselves from this volatility, bidders require fuel costs to be a pass through, particularly for longer term contracts. Thus, if fuel prices are high for Brandy Branch, they would also be similar for purchased power.

Q. What purchased power arrangements has TEA made on behalf of JEA?

A. Since 1998 TEA has arranged winter and summer seasonal purchases for JEA. While these arrangements are not directly comparable to the long term capacity and energy that will be provided by the Brandy Branch Conversion, their average cost has been higher than the Brandy Branch costs.

Q. Can you share with the Commission some of the bids for purchase power that you have obtained for other members of TEA that you would consider more comparable to the Brandy Branch Conversion?

A. Unfortunately not. The bids provided to TEA are subject to strict confidentiality requirements with the members for whom the bids are obtained. I can, however, say that the lowest cost comparable bids that I have seen are higher priced than the expected cost of power from the Brandy Branch Conversion. Furthermore, the capacity costs from the Panda bid that were presented in the Hines 2 Need for Power public hearing were 50 to 100 percent higher than the corresponding capacity costs associated with the Brandy Branch Combined Cycle.

Q. Can you share TEA's forward pricing curves with the Commission?

A. Again, unfortunately not. TEA's restrictions preclude me from disclosing those curves, but again, the expected cost of power from the Brandy Branch Conversion is below the forward pricing curves.

Q. Are you confident that the Brandy Branch Conversion Cycle project is the most cost-effective alternative available to JEA to meet its 2004 capacity requirements?

A. Yes. Based on my experience in the power marketing industry, it is my expert opinion that the Brandy Branch Conversion is the most cost-effective alternative available to JEA to meet its 2004 capacity requirements.

Q. Does this conclude your testimony?

A. Yes

BEFORE THE PUBLIC SERVICE COMMISSION

DIRECT TESTIMONY OF BRET L. GRIFFIN

ON BEHALF OF JEA

DOCKET NO. 001703-EM

DECEMBER 18, 2000

Q. Please state your name and address.

A. My name is Bret L. Griffin. My business address is 21 West Church Street, Jacksonville, Florida 32202.

Q. By whom are you employed and in what capacity?

A. I am employed by JEA as a Professional Engineer in the capacity planning group. In that position I am responsible, among other things, for planning, organizing and directing JEA's forecast of demand and energy.

Q. Please state your professional experience and educational background.

A. I have a Bachelors degree in Industrial Engineering from Georgia Institute of Technology. I am also a Registered Professional Engineer in the State of Florida.

I began my career at JEA in 1981 as an Intern Engineer. In 1986 I accepted a position as a Software Developer at Shelby Systems, Inc., of Memphis, Tennessee. I returned to JEA in 1988, where I have held various positions in JEA's fuels, system planning, finance and capacity planning organizations. I

have had primary responsibility for JEA's load forecasting for the last five years.

Q. What is the purpose of your testimony in this proceeding?

A. The purpose of my testimony is to provide a general overview of JEA's load forecast.

Q. Are there sections of the Need for Power Application identified as Exhibit _____ (JEA-1) that were prepared by you or under your direct supervision?

A. Yes, Section 7 and Appendix A.

Q. Are you adopting these sections as part of your testimony?

A. Yes.

Q. Are there any corrections to these sections?

A. No.

Q. Please describe the methodology used in forecasting JEA's energy production.

A. JEA utilizes a trend analysis to forecast energy production excluding production for off-system sales. Energy production is commonly referred to as net energy for load. The base case energy forecast is developed from 5, 10, and 15 year historical average energy production growth rates of 3.19, 3.14, and 3.73 percent/year, respectively. The mean of these average energy

production growth rates is 3.35 percent/year, or an average constant growth of 368 GWh/year. Both the mean average growth rate and the average constant growth are used to develop the forecast. The base case forecast includes wholesale sales to Florida Public Utilities Company (FPUC). JEA's contract with FPUC extends until December 31, 2007. For planning purposes, it has been assumed that JEA will serve FPUC loads throughout the planning period. The base case energy forecast used in the Need for Power Application is the same as that included in JEA's 2000 Ten Year Site Plan (TYSP).

Q. Please describe the methodology used in developing JEA's peak demand forecast.

A. The peak demand forecast represents a trend analysis of historical data, weather-normalized to typical temperatures. For each season, winter and summer, a separate model evaluates the effect of weather on historical peak demands and provides weather-normalized peak demands. The weather-normalized peak demands become the basis for the trend analysis. JEA uses the minimum temperature of the day for the winter season and the maximum temperature of the day for the summer season as the weather variables in the normalization methodology. For each individual year of historical data, JEA models the relationship between daily low or high temperature and daily peak demand. JEA evaluates the models at normal temperatures to estimate weather-normalized peak demands. For the purposes of this model, 23° F for the winter and 98° F for the summer are defined to be normal weather. The base case demand forecast is also the same as that included in JEA's 2000 TYSP.

Q. How is the impact of conservation reflected in the load forecast?

A. Because JEA uses a trend analysis based on historical data, the effects of existing conservation programs are implicitly included in the forecast.

Q. What are the results of JEA's demand and energy forecasts.

A. JEA's summer peak is forecast to increase from 2,534 MW in 2000 to 2,865 MW in 2004 and 4,365 by 2019, for a compound annual average growth rate of 2.9%.

Similarly, the winter peak is forecast to grow from 2,566 MW in 2000 to 2,924 in 2004 and 4,566 by 2019, or a compound annual average growth rate of 3.1%.

JEA's net energy for load is expected to grow at a compound annual average growth rate of 2.9% over the forecast period.

Q. Did you develop any alternative demand forecasts to be used to perform sensitivity analyses?

A. Yes. In addition to the base case forecast, JEA prepared high and low case load forecasts. The low case forecast represents growth in load at a constant rate of 1.0 percent per year, and the high case forecast assumes a constant growth rate of 5.0 percent per year. The 1.0 percent to 5.0 percent annual constant load growth range represents realistic low and high boundaries of load growth compared to the base case forecast of 2.9 percent. A long-term sustained growth rate of 1.0 percent would require significant and

unprecedented negative economic downturn in Jacksonville, which is felt to be very unlikely. Concerning the 5.0 percent upper bound, individual years have shown higher growth, but a sustained growth rate of that magnitude is considered unlikely.

Q. In your opinion is the base case load forecast reasonable for planning purposes?

A. Yes.

Q. Does this complete your testimony?

A. Yes.

BEFORE THE PUBLIC SERVICE COMMISSION

DIRECT TESTIMONY OF JOHN HENRY DAVID

ON BEHALF OF JEA

DOCKET NO. 001703-EM

DECEMBER 18, 2000

Q. Please state your name and address.

A. My name is John Henry David. My business address is 21 West Church Street, Jacksonville, Florida 32202.

Q. By whom are you employed and in what capacity?

A. I am employed by JEA as the Director of Electric System Fuels.

Q. Please describe your responsibilities in that position.

A. My responsibilities include the purchase of coal, residual oil, No.2 fuel oil, natural gas and contracting for natural gas transportation. I have negotiated numerous contracts with natural gas suppliers and transporters. The fuel price forecast in Exhibit___ (JEA-1) was prepared under my direction.

Q. Please state your professional experience and educational background.

A. I graduated with a Bachelor of Industrial Engineering degree from Georgia Institute of Technology in 1970. I am a Registered Professional Engineer in the State of Florida. I have done graduate work in probability and statistics. I have had numerous courses and attended seminars in engineering, statistics, forecasting and fuel related matters.

I joined JEA in 1970 and worked in various construction areas before transferring to system planning in 1980. In system planning, I supervised load research programs and the development of load and energy forecasts. I also participated in the development of state-wide load and energy forecasts. I was appointed to my present fuels position in 1988.

Q. What is the purpose of your testimony in this proceeding?

A. The purpose of my testimony is to sponsor JEA's fuel price forecast and to discuss natural gas supply and transportation for JEA's system prior to and following the Brandy Branch Conversion.

Q. Are there sections of the Need for Power Application identified as Exhibit _____ (JEA-1) that were prepared by you or under your direct supervision?

A. Yes, Section 6.

Q. Are you adopting this section as part of your testimony?

A. Yes.

Q. Are there any corrections to this section?

A. No.

Q. What was your participation in development of the fuel price projections used in the Need for Power Application?

A. Black & Veatch developed the fuel price projections at my direction. I provided Black & Veatch with historical JEA fuel price information. Black & Veatch then used this information, together with information from other sources, to develop the base case fuel price projection and two fuel price sensitivity cases for the Need for Power Application. I reviewed the resulting forecasts and concur that they are reasonable for planning purposes.

Q. For what fuels were forecasts developed?

A. Fuel forecasts were developed for low and medium sulfur coal, natural gas, residual oil (1.8 percent and 1.0 percent sulfur), No. 2 fuel oil, and petroleum coke.

Q. What methodology was used to forecast the fuel prices used in the Need for Power Application?

A. The forecasts are based on JEA's historical fuel costs together with information on price escalation from the Annual Energy Outlook (AEO) 2000 fuel price data published by the Energy Information Administration (EIA). From this information, real compounded annual escalation rates (CAERs) were calculated for the time periods 1998-2005, 2005-2010, 2010-2015, and 2015-2020. The base case forecast was developed by applying these real CAERs, together with an assumed annual inflation rate of 2.3 percent, to escalate 1999 JEA delivered fuel costs through the year 2019.

Q. Is this fuel price forecast methodology appropriate for purposes of this Need for Power Application?

A. Yes. The AEO 2000 energy data is a comprehensive and reliable source of domestic and international energy supply, consumption, and price information. AEO 2000 provides energy forecasts through the year 2020 and takes into account a number of important factors, some of which include:

- Restructuring of the U.S. electricity markets.
- Current regulations and legislation affecting the energy markets.
- Current energy issues.
- Appliance, gasoline and diesel fuel, and renewable portfolio standards.
- Expansion of the natural gas industry.
- Carbon emissions.
- Competitive electricity pricing.

The AEO 2000 energy data is objective and nonpartisan. It is used widely by both government and private sectors to assist in decision-making processes and in analyzing policy issues.

Q. What fuel will be used by the proposed combined cycle at Brandy Branch?

A. The Brandy Branch combined cycle unit will be dual fuel capable. It will use natural gas as the primary fuel and No. 2 fuel oil as the backup fuel. There are two oil storage tanks at the site which can provide approximately 2.4 days of full load operation of all units at Brandy Branch without resupply.

Q. What are the benefits of the combined cycle unit having dual fuel capability?

A. The dual fuel feature increases fuel diversity and protects against short-term natural gas supply interruption. Furthermore, the primary fuel is natural gas which reduces the dependency on foreign oil imports.

Q. What steps has JEA taken to assure that sufficient pipeline capacity will be available to transport natural gas to the combustion turbines at the Brandy Branch site?

A. JEA has taken steps to secure a portion of the pipeline capacity required to support its system needs and is currently engaged in negotiations to finalize the balance of its gas transportation arrangements.

Currently, Florida Gas Transmission Co. (FGT) is the pipeline transportation company for JEA, and Peoples Gas is the local distribution company. Firm natural gas transportation from FGT is currently obtained under two tariffs: FTS-1 and FTS-2. As of today, JEA has 40,000 decatherms per day of firm natural gas transportation under the FTS-1 rate schedule. JEA has contracted for an additional 14,000 decatherms per day of firm transportation capacity under the FTS-2 rate starting in 2002. Thus, JEA will have a combined total of 54,000 decatherms per day of firm natural gas transportation starting in 2002.

Q. Is this amount of transportation sufficient to meet JEA's total system needs for firm gas transportation?

A. No. JEA's total gas requirements by 2004 are projected to be approximately 115,000 decatherms per day. This requires JEA to obtain roughly an additional 61,000 decatherms per day of transportation capacity above what it currently has under contract.

Based on this need, JEA is currently negotiating for additional transportation capacity beginning in 2001. These negotiations will enable JEA to maintain sufficient pipeline capacity throughout the planning horizon by acquiring additional capacity from FGT, another pipeline, or from the secondary market. This additional gas transportation requirement will be served in the secondary market until pipeline construction to meet JEA's needs is completed.

Q. What impact does the conversion of the Brandy Branch combustion turbines to combined cycle operation have on JEA's need for pipeline capacity?

A. The conversion will have no meaningful impact on the amount of gas transportation capacity required by JEA. The addition of the heat recovery steam generators and the steam turbine generator effectively provides "free MW" by enabling JEA to generate additional energy from the same amount of fuel. Thus there is little or no impact on JEA's peak hour gas transportation requirements, which drive the amount of pipeline capacity that JEA must obtain. However, because the combined cycle units are expected to dispatch at a higher capacity factor than the stand-alone combustion turbines, the conversion to combined cycle operation does affect the optimal mix of firm, alternate firm, and interruptible transportation.

Q. Is any upgrade to the pipeline lateral to the Brandy Branch site required to serve the converted unit?

A. No. The pipeline lateral to the Brandy Branch site is permitted and currently under construction. It will be completed before it is needed by the simple cycle units, and it will provide enough capacity to handle the fuel needs of the simple cycle units and the conversion as well.

Q. You have talked about gas transportation, what about gas supply?

A. There are ample supplies of natural gas to meet JEA's system needs for the foreseeable future. Due to the relative volatility of the natural gas market, JEA does not typically enter into long term gas supply contracts. Instead, JEA relies on daily or monthly purchases, and use hedging techniques as appropriate to limit our fuel price exposure. JEA currently has no plans to change this procurement approach.

Q. Will the Brandy Branch Conversion increase JEA's total system requirements for the natural gas commodity?

A. That is difficult to predict. Because the combined cycle unit will operate at a higher capacity factor than the simple cycle combustion turbines, the total volume of gas burned at Brandy Branch will increase. At the same time, the combined cycle unit is more efficient and the "free" MW will displace power that would otherwise have been generated by other JEA units, including other gas-fired units. In any event, there will be adequate gas supplies available to JEA to meet our total system needs.

Q. Does this conclude your testimony?

A. Yes.

BEFORE THE PUBLIC SERVICE COMMISSION

DIRECT TESTIMONY OF MYRON ROLLINS

ON BEHALF OF JEA

DOCKET NO. 001703-EM

DECEMBER 18, 2000

Q. Please state your name and address.

A. My name is Myron Rollins. My business address is 11401 Lamar Avenue, Overland Park, Kansas.

Q. By whom are you employed and in what capacity?

A. I am employed by Black & Veatch Corporation. My current position is Project Manager.

Q. Please describe your responsibilities in that position.

A. As a project manager, I am responsible for the management of various projects for utility and non-utility clients. These projects encompass a wide variety of services for the power industry. The services include load forecasts, conservation and demand-side management, reliability criteria and evaluation, development of generating unit addition alternatives, fuel forecasts, screening evaluations, production cost simulations, optimal generation expansion modeling, economic and financial evaluation, sensitivity analysis, risk analysis, power purchase and sales evaluation, strategic considerations, analyses of the effects of the 1990 Clean Air Act Amendments, feasibility

studies, qualifying facility and independent power producer evaluations, power market studies and power plant financing.

Q. Please state your professional experience and educational background.

A. I received a Bachelor of Science degree in Electrical Engineering from the University of Missouri – Columbia. I also have two years of graduate study in nuclear engineering at the University of Missouri – Columbia. I am a licensed professional engineer and a Senior Member of the Institute of Electrical and Electronic Engineers.

I have over twenty-four years of experience in the power industry specializing in generation planning and project development. In the past ten years, I have been the project manager for over 100 projects, the vast majority of which are for Florida utilities. Florida utilities for which I have worked include City of Lakeland – Department of Electric Utilities, Kissimmee Utility Authority, Florida Municipal Power Agency, Orlando Utilities Commission, JEA, City of St. Cloud, Utilities Commission of New Smyrna Beach, Sebring Utilities Commission, City of Homestead, Florida Power Corporation, and Seminole Electric Cooperative.

I was responsible for the development of Black & Veatch's POWRPRO chronological production costing program and RECOM unit commitment program, and POWROPT optimal generation expansion program. I am also responsible for power market analysis and project feasibility studies. I have been responsible for need for power certification on a number of power plants

in Florida including Stanton 1 and 2, Cedar Bay, Cane Island 3, and McIntosh 5. I also participated in the need for power certification for the Hardee and Hines Projects. I have presented expert testimony on several occasions before the Missouri and Florida Public Service Commissions and have presented numerous papers on strategic planning and cogeneration.

Q. What is the purpose of your testimony in this proceeding?

A. The main purpose of my testimony is to address JEA's need for power as it relates to the Brandy Branch Conversion project. In my testimony, I will discuss the methodology used to evaluate the need for the Brandy Branch Conversion. I will also discuss economic assumptions used in the evaluation, other supply-side alternatives, Clean Air Act ramifications, and the consistency of the project with Peninsular Florida's needs. I will show that JEA has adequately explored alternative generating technologies and that the project will provide necessary electricity at the most cost-effective price and will contribute to the electric system reliability and integrity of JEA and Peninsular Florida.

Q. Are there sections of the Need for Power Application identified as Exhibit _____ (JEA-1) that were prepared by you or under your direct supervision?

A. Yes, Sections 4, 5, 8 (except 8.1), 11, 12, 18 and 19.

Q. Are you adopting these sections as part of your testimony?

A. Yes, I am.

Q. Are there any corrections to these sections?

A. Yes. There is a minor correction in Section 5 which is shown in Exhibit ____ (JEA-2).

Q. Are the economic and financial assumptions used by JEA in determining the need for the proposed Brandy Branch Conversion reasonable?

A. Yes. A consistent set of economic parameters was assumed for the evaluations. A general inflation rate of 2.3 percent was used which is generally consistent with the US Consumer Price Index (CPI). This rate was applied to capital costs and operation and maintenance costs.

The present worth discount rate assumed for the Need for Power Application is 7.95 percent. This is equal to JEA's current 20-year taxable bond rate. A sensitivity analysis was performed which utilized cases which were two percent higher and two percent lower than the base case.

A fixed charge rate of 11.51 percent was used based on the 7.95 percent bond interest rate and applied to capital cost for new unit additions in the evaluations.

Q. Please describe the process and methodology that JEA used to determine the most cost-effective option for meeting its load requirements.

A. First, reasonable and consistent economic parameters were assumed. Next a load forecast was developed and a reserve margin applied to determine JEA's

capacity requirements. The capacity requirements were compared to existing capability to determine the need for additional capacity. Fuel price projections were also developed. Cost and performance estimates were developed for generating unit alternatives.

All supply-side generating alternatives were first passed through two different screenings as described in Section 12 of Exhibit _____ (JEA-1). The first phase screening eliminated alternatives that were not technically feasible at the present time, still under commercial development, or not available to JEA due to resource constraints, such as hydroelectric power. Other alternatives were eliminated in the second phase. This second screening utilized a busbar analysis to compare alternatives based on their life cycle levelized costs.

The alternatives that survived the screening from these two phases were evaluated using the Electric Generation Expansion Analysis System (EGEAS) modeling software. EGEAS evaluates all combinations of alternatives to determine the lowest cumulative present worth revenue requirements for the system while maintaining the reliability criteria. All potential capacity addition plans were modeled over a twenty-year period.

Q. What methodology was used to evaluate demand side management (DSM) for JEA?

A. On the demand-side of the ledger, JEA evaluated in detail the most cost-effective of the Florida Power and Light Company's (FPL's) residential and commercial/industrial demand side management (DSM) measures from FPL's

Conservation Goals Docket No. 991788-EG. FPL evaluated approximately 250 DSM options in that docket. Since the DSM measures found to be most cost-effective by FPL were not found to be cost-effective for JEA, it can be assumed that all the 250 DSM measures evaluated by FPL are not cost-effective for JEA. These programs were evaluated for JEA using the PSC-approved Florida Integrated Resource Evaluator (FIRE) model which provides output in the form of the Rate Impact Test, the Total Resources Test, and the Participant's Test. As shown in Section 8 of Exhibit ___ (JEA-1), all of these items failed to pass the Rate Impact Test and were eliminated as not being cost-effective.

Q. In your opinion, has JEA demonstrated that the Brandy Branch Conversion is the most cost-effective alternative?

A Yes. As described in Section 13 of Exhibit ____ (JEA-1), the evaluations show that the Brandy Branch Conversion in 2004 is more than $17 million lower in present worth revenue requirements than the first plan which did not begin with the Brandy Branch Conversion.

Q. Given the many assumptions that are involved with forecasting future conditions, how can a utility be confident that it has actually identified the most cost-effective option?

A. Because there are assumptions that must be made in such an analysis, one way to mitigate the potential risk is to perform sensitivity analyses on those most important variables. As demonstrated by the sensitivity analyses in Section 14

of Exhibit _____ (JEA-1), the Brandy Branch Combined Cycle Conversion is clearly the most cost-effective supply alternative in 2004.

Q. Are you confident that all other feasible and economic supply-side options and demand-side options have been considered?

A. Yes. Cost and performance estimates were developed for conventional, advanced, nuclear, energy storage systems, and renewable and waste energy resources as potential capacity addition alternatives. Although many of the technologies are not viable at this time, cost and performance data were developed in as much detail as possible to provide the most accurate resource planning evaluation. Conventional alternatives were found to be the most technically viable and cost effective through a two-phase screening analysis described in Section 12 of Exhibit ____ (JEA-1).

JEA also evaluated numerous DSM measures. However, as outlined in Section 8.2.4 of Exhibit ____ (JEA-1), there are currently no cost-effective demand-side management measures available that would avoid or defer the need for the Brandy Branch Conversion.

Q. Is the proposed project consistent with Peninsular Florida's needs?

A. Yes. The Florida Reliability Coordinating Council (FRCC) is responsible for coordinating power supply reliability in Peninsular Florida for the North American Electric Reliability Council. The FRCC has selected a minimum 15 percent reserve margin criterion to ensure reliability for Peninsular Florida. As part of its reliability coordination activities, the FRCC provides an annual

summary and report of Peninsular Florida Ten Year Site Plans. The most recent planning summary conducted by FRCC is the 2000 Load and Resource for the State of Florida.

As shown in Section 19 of Exhibit ____ (JEA-1), Peninsular Florida reserve margins are projected to exceed the 15 percent planning criteria through 2009. Without the inclusion of units that have not yet received certification under the Power Plant Siting Act, including the Brandy Branch Conversion, this reserve margin would drop below 15% in 2004. Thus the Brandy Branch Conversion in 2004 is an important contributor to maintaining Peninsular Florida reliability at acceptable levels.

Q. In your opinion, will the Brandy Branch Conversion contribute to maintaining reliability and integrity for the JEA and Peninsular Florida systems?

A. Yes. The Brandy Branch Conversion is based on proven steam technology and will provide a reliable source of power to contribute to the JEA and Peninsular Florida reserve margins. It will be integrated into the electric system through existing transmission facilities and will have no adverse impact on the integrity of the grid.

Q. What impact will the Brandy Branch Conversion have on the environment?

A. JEA considers the impacts to the environment, its community and Peninsular Florida a vital portion of its strategic planning. While the Florida Electrical

Power Plant Siting Act carefully bifurcates the need for power from the environmental aspects of the facility, the Clean Air Act requirements and other regulations have a significant impact on the power plant's cost and performance. The proposed conversion of two of the Brandy Branch simple cycle combustion turbines to combined cycle would lower emissions on a kilowatt-hour basis and improve fuel utilization. All economic evaluations have included anticipated cost of compliance with environmental regulations.

The Brandy Branch Conversion must comply with the Clean Air Act and the current Florida air quality requirements stemming from the Act. An Authority to Construct (ATC) permit has been obtained for the simple cycle units at Brandy Branch. One aspect of the ATC permit is the determination of Best Available Control Technology (BACT). The Brandy Branch Conversion will achieve BACT for NOx through use of dry low NOx combustors and selective catalytic reduction (SCR).

The completed Brandy Branch combined cycle unit will emit small amounts of sulfur dioxide while running on either natural gas or No. 2 fuel oil. As an affected unit, Brandy Branch must have allowances available for emissions of sulfur dioxide to comply with its Title IV Acid Rain permit. JEA is proposing to limit sulfur dioxide emissions to 40 tons per year. JEA has identified two possible sulfur dioxide emissions compliance strategies. The first and preferred compliance strategy involves the reallocation of excess allowances currently maintained by JEA to cover Brandy Branch sulfur dioxide emissions. The other possible compliance strategy involves purchasing allowances. With

a maximum of 40 allowances required per year, the cost to purchase allowances would be insignificant.

Q. Does this conclude your testimony?

A. Yes.