Unit 3

BLACK & VEATCH LLP

BEFORE THE PUBLIC SERVICE COMMISSION

KISSIMMEE UTILITY AUTHORITY

FLORIDA MUNICIPAL POWER AGENCY

TESTIMONY OF JAMES C. WELSH

DOCKET NO. 980802-EM

JULY 27, 1998

Q. Please state your name and address.

A. My name is James C. Welsh and my business address is 1701 West Carroll Street, Kissimmee, Florida 34741.

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

A. I am employed by Kissimmee Utility Authority (KUA) as President and General Manager (CEO).

Q. Please describe your responsibilities in that position.

A. As President and General Manager (CEO), I have overall responsibility for the management and operation of utility operations, which currently includes management of approximately 270 MW of purchase power and generation capacity and associated transmission and distribution systems providing electric power to nearly 45,000 customers. KUA has a staff of over 260 employees and an annual operating budget of approximately 80 million dollars. As President and General Manger, I am accountable to the KUA Board on all matters concerning the utility. I have headed this utility for over 16 years.

Q. Please state your professional experience and educational background.

A. I have more than 25 years of professional engineering experience. Prior to joining KUA, I was employed by the East Kentucky Power Cooperative as a Lead Engineer. Prior to my employment with the East Kentucky Power Cooperative, I was employed by R. W. Beck & Associates and the Philadelphia Electric Company where I performed a variety of electrical engineering and utility planning services.

I am a registered professional engineer in the States of Florida, Pennsylvania, and have also been registered in the States of Colorado and Kentucky. I graduated with a bachelors degree in electrical engineering in 1973 and a masters degree in electrical engineering in 1976 from the University of Pennsylvania. I graduated in 1994 with a masters degree in business administration from Rollins College in Winter Park, Florida.

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

A. The purpose of my testimony is to provide background information about KUA's system, discuss KUA's need for additional generating resources, discuss the consequences if Cane Island Power Park Unit 3 is delayed, discuss the extensive RFP process that KUA conducted to determine Cane Island Unit 3 was the least-cost alternative, and identify witnesses who will provide testimony and exhibits supporting the Need for Cane Island Unit 3.

Q. Please describe the purpose and structure of KUA.

A. The Kissimmee Utility Authority (KUA) is a body politic organized and legally existing as part of the government of the City of Kissimmee. On October 1, 1985,

the City of Kissimmee transferred ownership and operational control of the electric generation, transmission, and distribution system to KUA. KUA has all the powers and duties of the City of Kissimmee to construct, acquire, expand and operate the system in an orderly and economic manner. KUA operates under the independent direction of a 5-member Board of Directors plus the Mayor of the City of Kissimme as a non voting member. In addition, KUA acts as a billing and customer service agent for the Water and Sewer and Refuse Departments of the City of Kissimmee. KUA's service area covers the City of Kissimmee and some unincorporated areas, totaling approximately 85 square miles. KUA provides reliable electric service to its customers through diversified power supply resources, which are based on KUA's own generation, off-site generation through joint participation projects and long- and short-term purchase power contracts.

Q. Please describe the operations of KUA.

A. KUA's load and electrical characteristics have many similarities to other Peninsular Florida utilities. Except during years with extreme winter weather conditions, KUA's system peak demand occurs during the summer months.

KUA is a member of the Florida Municipal Power Pool (FMPP), along with Orlando Utilities Commission (OUC), the Florida Municipal Power Agency (FMPA) All Requirements Project, and the City of Lakeland. FMPP operates as an hourly energy pool. Commitment and dispatch services for FMPP are provided by OUC. Each member of the FMPP retains the responsibility of adequately planning its own load and reserve requirements.

Q. Please describe the resources currently available to meet KUA's capacity and energy requirements.

A. KUA owns or has an ownership interest in the following five generating plants. The Hansel plant, which consists of a combined cycle unit and diesel generation and is solely owned by KUA. The Cane Island Power Park which consists of a LM6000 simple cycle combustion turbine and a General Electric 7EA combined cycle and is jointly owned by KUA and FMPA. Joint ownership in Florida Power Corporation's (FPC) Crystal River Unit 3 nuclear power plant. Joint ownership in OUC's Stanton Energy Center Unit 1 coal unit. Joint ownership in OUC's Indian River Units A and B combustion turbines. Mr. Ben Sharma will provide further details regarding KUA's generating plants.

Q. Please describe KUA's joint ownership of the Cane Island Power Park.

A. When KUA started development of the Cane Island Power Park, we sought FMPA to be a joint owner of the project in order that KUA could obtain additional benefits from the economies of scale from a larger project. KUA purchased and owns the 1,027 acre site southwest of the City of Kissimmee. The site is designed for an ultimate capacity of approximately 1,000 MW. FMPA is a 50 percent joint owner in Cane Island Units 1 and 2 as it will be in Unit 3. KUA is the project manager for construction and operation of the three units. Through the joint participation agreement, FMPA has the right to have KUA construct additional capacity on the site.

Q. Does KUA also purchase power to meet its customer's requirements?

A. Yes. KUA is a member of FMPA and is a participant in FMPA's St. Lucie Unit 2 nuclear project, and Station 1 and 2 coal projects. Mr. Ben Sharma will provide

details of KUA's participation in FMPA projects.

Q. Does KUA also buy power from other utilities?

A. Yes. KUA also purchases firm power from OUC. Mr. Ben Sharma will describe this purchase in detail.

Q. Is the capacity available from existing KUA power supply resources sufficient to reliably meet future KUA capacity and energy requirements?

A. No, it is not. The economic development associated with Walt Disney World and the other Central Florida attractions has caused KUA to be one of the fastest growing utilities in the United States. To ensure system reliability, KUA plans to maintain a minimum 15 percent reserve margin. KUA's analysis indicates that addition resources must be added by the summer of 2001 in order to maintain a 15 percent reserve margin. Mr. Robert Miller, System Planning Manager, will provide testimony detailing and supporting the KUA load forecast and reliability requirements.

Q. Please describe the generation resources that are being proposed by KUA to meet the future need for power.

A. KUA is seeking a determination of need by this Commission, as required by the Florida Electrical Power Plant Siting Act, in order to commence detailed engineering and construction activities on Cane Island Unit 3 at the existing Cane Island Power Park site. Unit 3 will be a 1 x 1 natural gas fired combined cycle unit, consisting of an F-class combustion turbine, heat recovery steam generator and steam turbine. Unit 3 will have a rating of approximately 250 MW, depending upon the specific combustion turbine selected and the final design of the steam turbine. KUA and

FMPA will each be 50 percent joint owners of the unit as they are in Units 1 and 2 at the Cane Island Power Park. KUA will be the unit operator. Mr. Myron Rollins of Black and Veatch $_{LLP}$ will sponsor the testimony and exhibits providing detailed information regarding the Cane Island Unit 3. Mr. Dick VanMeter of Black & Veatch $_{LLP}$ will provide testimony regarding forecast fuel prices for the unit. Mr. James Dowden of the Florida Gas Transmission Company (FGT) will sponsor testimony regarding the availability of natural gas pipeline capacity necessary for Cane Island Unit 3.

Q. Please briefly describe the evaluation process by which KUA determined that the proposed Cane Island Unit 3 is the best method of meeting KUA's future need for reliable power.

A. During the last two years, KUA has conducted an exhaustive analysis of alternative methods of meeting KUA's future capacity and energy requirements in a reliable, least-cost, environmentally responsible fashion. KUA's analysis, considered a multitude of factors including:

a). Alternative generation technologies and sizes.

b). Alternative fuel source and types.

c). Compliance with environmental regulations.

d). Purchase power alternatives.

e). Conservation and demand-side management alternatives.

f). Reliability considerations.

g). Uncertainty and sensitivity analysis.

h). Fuel diversity needs.

As part of this process, KUA conducted an extensive request for proposals (RFP) for

purchased power and evaluation of the proposals received. The results of the evaluations indicated that Cane Island Unit 3 with a June 1, 2001 commercial operation date was the least-cost long-range alternative that could meet KUA's reliability requirements. Cane Island Unit 3 will utilize the most efficient and reliable combustion turbine technology currently in commercial operation The high efficiency of Cane Island Unit 3 ensure that the project will remain a competitive resource if and when deregulation occurs in Florida.

Mr. Myron Rollins, and Scott Carpenter of Black & Veatch $_{LLP}$ will provide testimony related to the generation alternatives, economic assumptions, and the power supply evaluation process. Mr. Robert Miller of KUA will provide testimony regarding the evaluation process including the RFP process and evaluation.

Q. Will there be adverse consequences to KUA if Cane Island Unit 3 is not installed to meet KUA's need for capacity in the summer of 2001.

A. Yes. Without Cane Island Unit 3, KUA's reserve margin will decrease to unacceptable levels jeopardizing the ability of KUA's system to provide reliable cost effective power for its customers. In addition, the low cost energy produced by Cane Island Unit 3 would need to be replaced with higher cost purchase power and generation resulting in higher costs to KUA customers.

Q. Are there additional developments planned for KUA's service area resulting in a further need for Cane Island Unit 3?

A. Yes. One such project is the proposed World Exposition Center (Expo Center), a major commercial development to be located on an 800-acre site in the northwest corner of

KUA's service area. The construction of this world-class mixed-use facility is on the planning stages with initial operation expected in 2000. The $1.1 billion development will contain numerous facilities including a 2.4 million sq. ft. exposition floor, a 1.3 million sq. ft. convention center, and 2.6 million sq. ft. of hotel space. Total employment projections for the project and supporting industries is nearly 30,000 jobs with an estimated payroll of $700 million. Direct loads from the project facilities are estimated to increase from 13 MW initially to 45 MW with ultimate development under the base case forecast.

Developments in Central Florida such as the Expo Center continue to cause growth in KUA's service area. The Expo Center will likely have a greater direct impact on KUA's power requirements than Walt Disney World, further providing a need for the timely installation of Cane Island Unit 3.

Q. Does this complete your prefiled testimony?

A. Yes, it does.

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

KISSIMMEE UTILITY AUTHORITY

FLORIDA MUNICIPAL POWER AGENCY

TESTIMONY OF JOHN C. L'ENGLE

DOCKET NO. 980802-EM

JULY 27, 1998

Q. Please state your name and address.

A. My name is John C. "Claude" L'Engle and my business address is 7201 Lake Ellenor Dr., Orlando Florida 32809.

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

A. I am employed by Florida Municipal Power Agency (FMPA) as its General Manager.

Q. Please describe your responsibilities in that position.

A. As General Manager, I have overall responsibility for the management and operation of FMPA which currently includes five power supply projects including the All-Requirements Project. I am directly responsible to FMPA's Board of Directors.

Q. Please state your professional experience and educational background.

A. I have more than 40 years experience in the utility industry. Prior to joining FMPA, I served seven years as Utilities Director for the City of Lake Worth, Florida. I joined Lake Worth as Chief Engineer in 1971 and served in various management positions leading to my appointment as Utilities Director in 1984.

As Lake Worth's representative to FMPA, I served from 1983 to 1991 on FMPA's Board of Directors and Executive Committee, including one term as the Agency's Vice-chairman and two terms as Chairman from 1985 through 1987.

My background includes 15 years of experience with the engineering consulting firm of Reynolds, Smith & Hills, where I specialized in power plant design and worked in the areas of power system feasibility studies, plant site development, plant permitting, design and construction.

I am a registered professional engineer in the State of Florida and I graduated with a bachelor's degree in mechanical engineering from Auburn University.

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

A. The purpose of my testimony is to:

a). Provide background information about the FMPA system,

b). Discuss the need for additional generating resources,

c). Identify witnesses who will provide testimony and exhibits supporting the Cane Island Power Park Unit 3 Need for Power Application (Exhibit ___ KUA-1).

Q. Please describe the purpose and structure of FMPA.

A. The Florida Municipal Power Agency ("FMPA" or "Agency") was created on February 24, 1978, under the provisions of the Florida Constitution, the Joint Power Act, and the Florida Interlocal Cooperation Act of 1969 FMPA was formed to allow its members to cooperate with each other, on the basis of mutual advantage, to provide services and facilities in a manner and in a form of governmental organization relevant to geographic,

economic, population, and other factors influencing the needs and development of local communities. Specifically, FMPA is involved in the joint financing, construction, acquisition, ownership, management, and operation of electric generation resources. Currently there are 27 members of FMPA and each city commission, utility commission, or authority has the right to appoint one member to FMPA's Board of Directors

Q. Please describe the operations of FMPA.

A. FMPA is a project-oriented, joint-action agency where each power supply project is a stand alone project. The net generating capability of FMPA's five separate power projects is 487 MW as detailed in the NFP Application, Section 1C.2.0 Description of Existing Facilities. FMPA has five power supply projects in operation:

a). St. Lucie Project

b) Stanton Project

c). Tri City Project

d). All Requirements Project (ARP)

e). Stanton II Project

Member participation in each project as well as a more detailed discussion of the generating facilities associated with each project is detailed in Section 1C.2.0 of the NFP Application.

Q. Please describe the function of All-Requirements Project (ARP)

A. The ARP provides its 10 members (with the City of Lake Worth anticipated to join in 1999) with all of their capacity and energy requirements (above certain excluded resources). ARP members which have entitlement shares in other FMPA projects make those entitlement shares available to the ARP. Similarly, the ARP purchases the

capacity and energy from member's on-system resources for use by the Project and, in turn, supplies the members with their full capacity and energy requirements. The ARP is a member of the Florida Municipal Power Pool, an energy pool, which conducts dispatch operations on behalf of the ARP. FMPA is responsible for assessing and acquiring power supply resources necessary to meet the future capacity and energy needs of ARP members. The need for capacity and energy for the ARP is the basis of this Need for Power Application.

Q. Please describe the resources currently available to meet the ARP members capacity and energy requirements.

A. The ARP project currently has 1127 MW (Summer Rating) of generating and purchase power capacity available to meet member requirements. These resources are comprised of All-Requirements Project generating facilities, member on-System facilities, and power purchases. The 1998 capacity mix of ARP Project and ARP member facilities by fuel type is:

6% Nuclear

13% Natural Gas

6% Oil

12% Coal

63% Purchase Power

100 % Total

A complete listing of FMPA resources is detailed in Section 1C.2.0 of the NFP Application. Mr. Richard Casey of FMPA will be sponsoring testimony and exhibits regarding FMPA existing facilities.

Q. Is the capacity available from existing FMPA power supply resources sufficient to reliably meet future member capacity and energy requirements?

A. No, it is not. To ensure system reliability, FMPA plans to carry capacity reserves of not less than 18 percent of the system peak load in any given year. FMPA's analysis indicates that additional generating resources must be added by the summer of 2001 if an adequate level of system reliability and an 18 percent reserve margin are to be maintained.

Mr. Richard Casey, System Planning Manager, will provide testimony detailing and supporting the FMPA load forecast and reliability issues associated with the need for power

Q. Please describe the generation resources that are being proposed by FMPA to meet the future need for power.

A. FMPA is seeking a determination of need by this Commission, as required under the Florida Electrical Power Plant Siting Act, in order to commence detailed engineering and construction activities on Cane Island Unit 3 at the existing Cane Island Power Park site. Unit 3 will be a 1x1 natural gas fired combined cycle unit, consisting of an F class combustion turbine, heat recovery steam generator and steam turbine with an approximate rating of 250 MW depending upon the specific combustion turbine selected and the final design of the steam turbine. Kissimmee Utility Authority (KUA) and FMPA will each be 50 percent joint owners of the unit as they are in Units 1 and 2 at the Cane Island Power Plant. KUA will be the unit operator. Mr Myron Rollins of Black & Veatch will sponsor the testimony and exhibits providing detailed information regarding the Cane Island Unit 3. Mr. Dick Van Meter of Black & Veatch will provide

testimony regarding forecast fuel prices for the unit. Mr. James Dowden of the Florida Gas Transmission Co. will sponsor testimony regarding the availability of natural gas pipeline capacity necessary for the unit.

Q. Please briefly describe the evaluation process by which FMPA determined that the proposed Cane Island Unit 3 is the best method of meeting its members future needs for reliable power.

A. Over the past several months FMPA has conducted an exhaustive analysis of alternative methods of meeting the ARP members future capacity and energy requirements in a reliable least cost fashion. Our analysis has considered a multitude of factors including:

a). Alternative generation technologies and sizes

b). Alternative fuel sources and types options

c). Compliance with environmental requirements

d). Purchase power alternatives

c). Conservation and Demand Side Management Alternatives

d). Reliability Considerations

e). Uncertainty and sensitivity analysis

f). Fuel diversity needs

Our analysis included rigorous and detailed financial analysis of power supply alternatives that was conducted over a 20-year time horizon to insure that economic evaluations represent what is in the best long-term interest of our members. The evaluation criteria for selection of the preferred power supply alternative is the minimization of cumulative present worth revenue requirements and the maintenance of a defined level of system reliability. Based on these criteria, the Cane Island Unit 3 with a commercial operation date of June 1, 2001, is the most economic means of

meeting the ARP requirements. As part of this process, FMPA conducted an extensive request for proposals (RFP) for purchase power and evaluation of the proposals received. The results of this evaluation indicated that Cane Island Unit 3 was the least cost long range alternative that could meet the ARP reliability requirements.

It is my opinion that, based on the analysis undertaken, it is in the best interest of the FMPA All-Requirement Project members to move forward with the Cane Island Unit 3 project. The project will provide reliable low cost power to the ARP members as well as Peninsular Florida.

Mr. Myron Rollins, Mr. Dan Runyan and Mr. Scott Carpenter of Black & Veatch will provide testimony related to the generation alternatives, economic analysis and sensitivity analysis included in the power supply evaluation process. Mr. Richard Casey will provide testimony regarding the RFP process and evaluation.

Q. Will there be adverse consequences to the ARP members if Cane Island Unit 3 is not installed to meet the ARP's need for capacity in the summer of 2001?

A. Yes. Without Cane Island Unit 3, the ARP's reserve margin is projected to drop to 7 percent which would not be adequate to maintain reliable service to the ARP members. In addition, the low cost energy produced by Cane Island Unit 3 would have to be replaced with higher cost purchase power and generation resulting in higher costs to the ARP members.

Q. Does this complete your prefiled testimony?

A. Yes it does.

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

KISSIMMEE UTILITY AUTHORITY

FLORIDA MUNICIPAL POWER AGENCY

TESTIMONY OF MYRON R. ROLLINS

DOCKET NO. 980802-EM

JULY 27, 1998

Q. Please state your name and business address.

A. My name is Myron R. Rollins. My business address is 11401 Lamar, Overland Park, Kansas 66211.

Q. Who is your employer and what position do you hold?

A. I am employed by Black & Veatch $_{LLP}$ (Black & Veatch) as a Project Manager in the Plant Services Department of the Power Division

Q. Please describe your responsibilities in that position.

A. As a Project Manager in the Plant Services Department, I am responsible for managing 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, screening evaluations, production cost simulation, optimal generation expansion modeling, economic and financial evaluation, sensitivity analysis, risk analysis, power purchase and sales evaluations, 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 licensing.

Q. **Please summarize your background and experience.**

A. I received a Bachelors of Science degree in electrical engineering from the University of Missouri-Columbia. I also have two years of graduate studies 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 been employed by Black & Veatch since 1976 in the power sector advisory services area. In the last ten years, I have been the project manager for over 100 projects. I have conducted a majority of my work for Florida utilities. Florida utilities for which I have worked include Kissimmee Utility Authority, Florida Municipal Power Agency, Orlando Utilities Commission, Jacksonville Electric Authority, City of St. Cloud, City of Lakeland Electric and Water, Utilities Commission of New Smyrna Beach, Sebring Utilities Commission, City of Homestead, Florida Power Corporation, and Seminole Electric Cooperative.

I attempt to stay abreast of Florida Public Service Commission (PSC) proceedings. For instance, I was the Project Manager for projects which prepared 1998 Ten Year Site Plans for Kissimmee Utility Authority, City of Lakeland, Orlando Utilities Commission, and Jacksonville Electric Authority. I have previously presented testimony before the PSC for the Stanton 1 and 2 and AES-Cedar Bay need for power certification. I have also participated in the preparation of testimony for the Seminole Electric's Hardee County Combined Cycle Project, the Cypress Project, and the Hines Energy Center Project need for power certification.

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to address Kissimmee Utility Authority (KUA) and Florida Municipal Power Agency's (FMPA's) need for power as it relates to Cane Island 3. In my discussion of KUA and FMPA's need for Cane Island 3, I will provide a description of the project including an overview and summary of the project. I will discuss the availability of fuel for the project, the consistency of the project with Peninsular Florida's needs, potential supply side alternatives to the project, the implications of the 1990 Clean Air Act Amendments on the project, and the methodology used by KUA in evaluating the need for the project. I will show that Cane Island 3 will contribute to the electric system reliability and integrity of KUA and FMPA's system as well as for Peninsular Florida. I will also discuss whether the project contributes to fuel diversity for KUA and FMPA's system as well as Peninsular Florida. I will show that KUA and FMPA have reasonably considered the costs of environmental compliance and that KUA and FMPA have provided sufficient information on the site, design, and engineering characteristics to evaluate the project. I will show that KUA and FMPA have adequately explored alternative generating technologies and the project will provide adequate electricity to KUA, FMPA, and Peninsular Florida at a reasonable cost. Finally, I will show that KUA and FMPA have considered all associated facilities and transmission improvements required with the project and included their cost in economic evaluations.

Q. Were there Subsections of the Cane Island Power Park Unit 3 Need for Power Application prepared by you or under your direct supervision?

A. Yes. Subsections 1A.1.0, 1A.2.1 through 1A.2.8, 1A.4.0, 1A.6.0, 1A.8.0, 1B.1.0, 1B.3.0, 1B.8.0, 1B.15.0, 1C.1.0, and 1C.15.1 contained in Exhibit ____ KUA-1 were

prepared by me or under my direct supervision.

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

A. Yes, I am.

Q. Are there any corrections to these Subsections?

A. Yes. I have identified one typographical correction the first output percent in Table 1A.2.3 should be 100.

Q. Please describe the project.

A. Cane Island Unit 3 will be a 1x1 F class combined cycle unit consisting of one combustion turbine, one heat recovery steam generator (HRSG), and one steam turbine. The estimated net output of the unit at ISO conditions is 262 MW which includes a reduction of 4 percent for degradation. The actual net plant output will depend upon the specific combustion turbine purchased and the final design of the steam turbine. Current plans are for the unit to have evapc..tive cooling and duct firing. The unit will burn natural gas as primary fuel and will be capable of burning low sulfur No. 2 oil as backup fuel with an additional 1 million gallon storage tank planned for installation which will allow all the Cane Island units to operate at full load for approximately three days on No. 2 oil. A mechanical draft cooling tower using treated sewage effluent from the City of Kissimmee effluent pipeline will provide cycle cooling. The combustion turbine will utilize dry low NOx combustors to control NOx emissions. Wastewater from cooling tower and boiler blowdown and demineralizer wastes are returned to the City of Kissimmee effluent pipeline

Cane Island Unit 3 will be constructed adjacent to the existing Cane Island Units 1 and 2. Unit 1 is an LM6000 simple cycle combustion turbine and Unit 2 is a Frame 7EA combined cycle. Cane Island Unit 3 will utilize existing common facilities installed with Units 1 and 2. The natural gas pipeline and the City's treated sewage effluent pipeline are both adequately sized to accommodate Unit 3

Cane Island Unit 3 will be jointly owned by KUA and FMPA as are Units 1 and 2. KUA will serve as the manager for construction and operation as they do for Units 1 and 2.

The estimated total project cost is $117.6 million for commercial operation on June 1, 2001 The unit will predominately use the existing operations and maintenance staff with only two additional personnel projected to be required. At ISO conditions, the unit is projected to have a net plant output of 262 MW with a net plant full load heat rate of 6,815 Btu/kWh on a higher heating value basis including degradation. The unit is projected to have an equivalent availability of 91.8 percent. The projected construction period for the unit is 20 months with construction scheduled to begin on October 1, 1999.

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

A. Yes. Based on information provided in the Florida Reliability Coordinating Council's 1997 Ten-Year Plan State of Florida, an additional 689 MW of capacity will be required in winter of 2000/01 to maintain a 15 percent reserve margin for Peninsular Florida. This capacity is in addition to load reductions obtained from exercising all available load manage and interruptible customers. The 689 MW includes all utility

plans for capacity that do not require certification as well as all certified plant additions, but does not include capacity plans which require certification, but which have not been certified. Cane Island Unit 3 can contribute to supplying the needed MW's.

Q. Have KUA and FMPA considered the implications of the 1990 Clean Air Act Amendments in their selection of Cane Island Unit 3?

A. Yes. Cane Island Unit 3 will be an affected unit under the 1990 Clean Air Act Amendments. The 1990 Clean Air Act Amendments require that affected units have continuous emissions monitors. The cost for these continuous emissions monitors have been included in the capital cost estimate for Cane Island Unit 3. The 1990 Clean Air Act Amendments also require that affected units provide SO_2 allowances when emitting SO_2. Cane Island Unit 3 will burn natural gas as primary fuel and will burn low sulfur (0.05 percent) No. 2 oil as backup fuel. The use of No.2 oil will be limited such that such that SO_2 emissions will be limited to less than 40 tons per year or 40 allowances per year. Both KUA and FMPA have sufficient excess allowances from Stanton Unit 1 to cover the allowance requirements of Cane Island Unit 3.

Q. Have KUA and FMPA reasonably considered the costs of environmental compliance in the cost estimate of Cane Island Unit 3.

A. Yes. The cost estimate for Cane Island Unit 3 contains the estimated cost for environmental compliance. Cane Island Unit 3 will use dry low NOx combustors to control NOx emissions. It is anticipated that the dry low NOx combustors will meet BACT requirements. If, however, BACT requirements were to require the addition of SCR, the $7.5 million contingency included in the cost estimate is more than

sufficient to cover the cost of the SCR.

Q. Please describe the alternate generating unit alternatives that were developed as alternatives to Cane Island Unit 3.

A Cost and performance estimates were developed for renewable and waste technologies, advanced technologies, energy storage systems, nuclear, and conventional technologies. Only the conventional technologies were found to technically viable and cost effective. The conventional alternatives developed included pulverized and CFB coal units, simple cycle combustion turbines, and combined cycles. Cost and performance estimates for each of the conventional alternatives were developed on the same basis as for Cane Island Unit 3 considering such things as transmission system requirements, backup fuel requirements, and emission control requirements. Cost and performance estimates for four different sizes and technologies of combustion turbines and four different sizes of combined cycle units were developed. The cost and performance estimates were based on specific combustion turbine designs, however, many similar sizes and designs are available from a number of vendors.

Q. Does this complete your prefiled testimony?

A. Yes, it does.

BEFORE THE PUBLIC SERVICE COMMISSION

KISSIMMEE UTILITY AUTHORITY

FLORIDA MUNICIPAL POWER AGENCY

TESTIMONY OF RICHARD K. VAN METER

DOCKET NO. 980802-EM

JULY 27, 1998

Q. Please state your name and address.

A. My name is Richard K. Van Meter and my business address is 11401 Lamar Ave., Overland Park, Kansas 66211.

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

A. I am employed by Black & Veatch $_{LLP}$ (Black & Veatch) as the Unit Leader of the Fuels Supply Planning Group.

Q. Please Describe your responsibilities in that position.

A. I am responsible for studies analyzing fuel issues for power generation projects throughout the world. As such, I conduct feasibility studies, evaluate fuel infrastructure and transportation issues, prepare fuel price projections, assess fuel availability and identify alternative fuel source options.

Q. Please state your professional experience and educational background.

A. At Black & Veatch I have provided fuel related consulting services and performed numerous fuel supply studies including: feasibility studies, gas transmission configuration analysis and natural gas strategic studies.

Before joining Black & Veatch, I was a Division Manager for Panhandle Eastern Pipeline Company and was responsible for providing a wide range of technical support services for a large and complex natural gas pipeline system. Specifically, I conducted system planning analysis, economic evaluations, environmental compliance analysis, facility testing and failure analyses.

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to discuss the fuel price projections used in the economic evaluation of Cane Island Unit 3 and describe the methodology used to develop those forecasts.

Q. Have you prepared any exhibits as part of your testimony?

A. Yes. I have prepared one exhibit, Exhibit RKV-1, which is attached and included as part of my testimony.

Q. Were there Subsections of the Cane Island Unit 3 Need for Power Application (Exhibit ___ KUA-1) prepared by you or under your direct supervision?

A. Yes. Subsections 1A.3.2, 1A.3.3, 1B.4.2, 1B.4.3, 1C.4.2, and 1C.4 3 of Exhibit ___ KUA-1 were prepared by me or under my direct supervision.

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

A. Yes, I am and I'm also adopting Appendix 1A.9-1.

Q. Are there any corrections to Subsections?

A. Yes, there are some typographical corrections as shown in Exhibit ___ RKV-1.

Q. What fuels were forecasts developed for?

A. Forecasts for the delivered cost of fuel were developed for natural gas, coal, nuclear and No. 2 and No. 6 fuel oil.

Q. What data source(s) and base year costs were assumed for each of the fuel price forecasts?

A. The base year for all fuel costs was 1997. The basis for each price forecast was as follows:

Coal - The 1997 cost of coal was set equal to the price of spot coal purchases delivered to Orlando Utility Commission's Stanton Energy Center in 1997 by rail from Central Appalachia, as reported by the Resource Data Institute in their POWERdat database.

No. 6 oil - The 1997 cost of No. 6 oil was set equal to the cost of No. 6 oil delivered to Electric Utilities in Florida in 1997 as published by the U.S. Energy Information Administration in "Cost and Quality of Fuels for Electric Utility Plants."

No. 2 oil - The 1997 cost of No. 2 oil was set equal to the delivered cost to Electric Utilities in Florida in 1997 as published by the US Energy Information Administration in "Cost and Quality of Fuels for Electric Utility Plants."

Natural Gas - The natural gas pricing used in the economic evaluation was based on production from Gulf Coast and offshore wells in the Gulf of Mexico. The two main pricing points are Henry Hub, LA and the Gulf Coast. Henry Hub, LA is an interchange for nine large interstate and four intrastate natural gas pipelines. It is also the delivery

point for the natural gas futures contract traded on the New York Mercantile Exchange. An average of these two prices for 1997 was used to represent the 1997 cost of natural gas, excluding transportation.

Q. Who is Standard & Poor's DRI?

A. DRI (Data Resources International) is a business unit of Standard and Poors, a division of McGraw Hill Inc. DRI was established in 1968, and is an economic consulting and information company forecasting economic trends. Their data, analysis, forecasts and expert advice is used by strategic planners, business analysts, corporate staff economists, marketing managers, financial analysts and government policy makers. DRI's Energy Group has been providing long term forecasts of energy consumption, production, and prices by fuel type for more than two decades.

Q. How was the DRI price forecast used in the development of KUA's fuel price forecast?

A. The fuel price forecast prepared by DRI included No. 2 oil for the South Atlantic Region, natural gas at Henry Hub and the Gulf Coast, and coal delivered to the South Atlantic Region. These forecasts provided annual price projections in nominal dollars per MBtu through the year 2020.

DRI's nominal price forecasts were converted to real or constant 1996 dollar prices using DRI's implicit price deflator for the period 1996 through 2017. The 1997 Base Year prices for Coal, No. 2 oil and natural gas (Henry Hub and Gulf Coast) were then adjusted by the real escalation rates derived from the DRI projections. These real or constant dollar price projections were converted to a nominal dollar forecast by

assuming an additional annual 2.5 percent adder for general inflation.

A. What is the implicit price deflator and what is the basis for the constant rate of 2.5 percent per year assumed for the implicit price deflator?

A. The implicit price deflator is a broad measure of the expected underlying general rate of inflation for all goods and services. The escalation rate of 2.5 percent per year was assumed based on current and forecast economic conditions. Additional testimony regarding the annual general inflation rate of 2.5 percent per year will be provided by Mr. Scott Carpenter of Black & Veatch.

Q. What is the long-term price forecast for No. 6 oil based upon?

A. The price forecast of No. 6 oil assumes that the current price of No. 6 oil will escalate at the same rate as that forecast for No. 2 oil.

Q. What is the basis for the long-term forecast of nuclear fuel?

A. This forecast is based upon the price of nuclear fuel at the St. Lucie and Crystal River nuclear plants in 1996 as reported by the Resource Data Institute (RDI) POWERdat database. The price was assumed to escalate at the same rate as general inflation, 2.5 percent per year.

Q. Who would make arrangements for the purchase of natural gas and schedule transportation entitlements?

A. Florida Gas Utility (FGU). FGU purchases gas and arranges for its transportation on behalf of its member utilities in the State of Florida, including KUA and Florida Municipal Power Agency (FMPA). Their fee for arranging gas purchases and its

transport via Florida Gas Transmission (FGT) pipeline is 3.67 ¢/MBtu and has been included in the forecast for the delivered price of natural gas.

Q. Describe the applicable transportation charges applied to the total forecast price of natural gas.

A. A demand or reservation fee is levied by the pipeline on each customer which has requested firm transportation capability. It essentially assures the customer an entitlement to transport the quantity of gas covered by the reservation fee. This fee is paid to the pipeline company (FGT) regardless of whether any gas is transported.

In addition, the pipeline assesses a fuel or compression charge for the gas used to fuel the combustion turbines at the compression stations along the pipeline, which amounts to approximately 3 percent of the gas purchase price.

There is also a variable cost associated with gas transportation, which is assessed as a commodity charge and is currently set equal to 1.44 ¢/MBtu.

Finally, there is a Gas Research Institute (GRI) demand surcharge of approximately 0.85 ¢/MBtu, a GRI commodity charge of 0.88 ¢/MBtu, and an American Gas Association (AGA) surcharge of 0.22 ¢/MBtu. These charges are used to fund research related to the production, transport, and utilization of natural gas. Regardless of the individual transportation cost components, FGT has indicated that transportation charges for the Phase IV expansion will be equal to or less than Phase III charges

Q. What is the availability of natural gas?

A. The preferred fuel, based upon technical, economic, and environmental considerations is natural gas. DRI projects that natural gas supply is expected to be adequate to possibly excessive by 2000. This is because natural gas reserve additions have exceeded production during the past 2 years in the United States. By 2000, pipeline capacity additions of 5 to 10 Bcf/day, from Canada, the Rocky Mountains, and the deep Gulf of Mexico are expected to create an overabundance of supply, exceeding the projected gas demand growth of 7 Bcf/day. After 2000, DRI expects demand to be in balance with supply.

Q. Are the fuel price projections developed reasonable for use in evaluating different generating unit alternatives?

A. Yes. The fuel price projections are generally consistent with other projects that I have encountered in my work and are reasonable to use to evaluate different generating unit alternatives.

Q. Does this complete your prefiled testimony?

A. Yes, it does.

Corrections to Cane Island Unit 3 Need for Power Application

1. On Page 1A.3.2-2, Line 30, change the word "cost" to "price".
2. On Page 1A.3.2-8, Line 19, change the word "less" to "more".

BEFORE THE PUBLIC SERVICE COMMISSION

KISSIMMEE UTILITY AUTHORITY

FLORIDA MUNICIPAL POWER AGENCY

TESTIMONY OF JAMES C. DOWDEN

DOCKET NO. 980802-EM

JULY 27, 1998

Q. Please state your name and address.

A. My name is James C. Dowden and my business address is 601 South Lake Destiny Drive, Maitland, Florida 32794.

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

A. I am employed by Florida Gas Transmission Company (FGT) as Regional Vice President of Marketing.

Q. Please describe your responsibilities in that position.

A. As Vice President of Marketing, I have overall responsibility for expanding FGT's business interests in the marketing of gas transmission services in the region. I supply the gas transportation needs of FGT customers through coordination of open seasons, which are periods when FGT polls new and existing customers for their gas transportation needs preceding phased expansions of the gas transmission system, and implement planning of interruptible and firm gas transportation planning.

Q. Please state your professional experience and educational background.

A. I have over 37 years of experience in the gas industry. I began my career in the gas

industry in 1961 when I was employed with Texas Eastern Transmission Company as a Junior Measurement and Corrosion Engineer.

In 1966 I accepted a position with FGT as a Measurement Technician. I was promoted in 1975 to FGT's Assistant Superintendent of the Gas Control Department and was responsible for administering the Curtailment Program. In 1978 I was promoted to Manager of Distributor Sales in the Marketing Department. In 1985 I became Director of Marketing. In 1991 I became Regional Vice President of Transportation Marketing, and later that year became Vice President of Throughput Management. As a result of FERC Order 636 and a complete restructuring of the gas industry, I was transferred to Winter Park, Florida in 1993 as Regional Vice President of Marketing. I received a bachelors degree in Industrial Technology from Northwestern State University in 1961.

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

A. The purpose of my testimony is to address gas transportation capacity issues as they pertain to the next phased expansion (Phase IV) of FGT's system and the needs of KUA and FMPA for gas supply to the Cane Island Power Park. In my discussion of FGT's transportation capacity and supply to the Cane Island Site, I will describe FGT's existing gas transportation system including historical reliability of supply at Cane Island, FGT's Phase IV expansion plans, and transportation costs.

Q. Describe the Florida Gas Transmission Company (FGT).

Florida Gas Transmission Company (FGT) is an open access interstate pipeline company transporting natural gas for third parties through its 5,000 mile pipeline system

extending from South Texas to Miami, Florida. FGT is a subsidiary of Citrus Corporation, which in turn, is jointly owned by Enron Corporation, the largest integrated natural gas company in America, and Sonat, Inc., one of the largest independent producers of natural gas in the United States. The FGT pipeline system accesses a diversity of natural gas supply regions including:

a). Anadarko Basin (Texas, Oklahoma and Kansas).

b). Arkona Basin (Oklahoma and Arkansas).

c). Texas and Louisiana Gulf Areas (Gulf of Mexico).

d). Black Warrior Basin (Mississippi and Alabama).

e). Louisiana - Mississippi - Alabama Salt Basin.

f). Mobile Bay.

FGT's total receipt point capacity is in excess of 3.0 billion cubic feet per day and includes connections with 10 interstate and 10 intrastate pipelines to facilitate transfers of natural gas into its pipeline system.

Q. Describe FGT's bulk pipeline system.

The FGT multiple pipeline system corridor enters the Florida panhandle in northern Escambia County and runs easterly to a point in southwestern Clay County, where the pipeline corridor turns southerly to pass west of the Orlando area. The mainline corridor then turns to the southeast to a point in southern Brevard County, where it turns south generally paralleling Interstate Highway 95 to the Miami area. A major lateral line (the St. Petersburg Lateral) extends from a junction point in southern Orange County westerly to terminate in the Tampa, St. Petersburg, Sarasota area. A major

loop corridor (the West Leg Pipeline) branches from the mainline corridor in southeastern Suwannee County to run southward through western Peninsular Florida to connect to the St. Petersburg Lateral system in northeastern Hillsborough County. Each of the above major corridors includes stretches of multiple pipelines (loops) to provide flow redundancy and transport capability. Numerous lateral pipelines extend from the major corridors to serve major local distribution systems and industrial/utility customers.

Q. Describe the existing Cane Island site gas pipeline interconnection with FGT's system.

The Cane Island Power Park is served from an existing FGT system delivery point on the St. Petersburg Lateral located in northwestern Osceola County. From the custody metering installation at the delivery point, the lateral pipeline (the Cane Island Lateral) runs south and then easterly to service the existing generation facilities at the Cane Island site. The Cane Island Lateral is owned by KUA and FMPA. The Cane Island Lateral is a 20 inch diameter pipeline capable of providing maximum design basis hourly volumes. The Cane Island Lateral completed in 1993 is sized for the supply of natural gas at the ultimate plant development level (approximately 1,000 MW of combined cycle capacity) of the Cane Island site. Subsequent to the completion of the lateral pipeline, a tap off serving the Intercession City Plant of Florida Power Corporation (FPC) has been completed from the Cane Island Lateral. This sublateral, installed in 1996, is an 8 inch diameter pipeline with an estimated flow capacity of 20 to 30 million cubic feet per day at present-day FGT mainline operating pressures. Under the contractual arrangements between KUA and FPC, the service to the Intercession City Plant is on an "as available" basis and is interruptible should KUA and FMPA require

the gas supply for operation of the Cane Island facilities.

Q. Describe FGT's Phase IV expansion plans.

On August 15, 1997, FGT initiated an "open season" for a proposed expansion of mainline transmission capability to serve new markets. Open season refers to the industry practice of conducting a survey of future market demands for transport of natural gas prior to the design and construction of new line construction or expansion projects on existing pipeline systems. The survey is employed to evaluate regional demand for transportation capacity by requesting that potential shippers submit non-binding expressions of interest or requests for new, additional (incremental), or relinquishment of firm transmission services. This process allows FGT to estimate the extent of pipeline capacity expansion capacity volumes needed and to determine the overall economic feasibility of a system expansion. The open season is conducted under defined ground rules to assure the integrity of the shipper's submissions and the non-discriminatory analysis of the responses.

Q. When will FGT's Phase IV expansion be implemented?

A. Based on preliminary results of the open season analysis, FGT estimates an in-service date for Phase IV in fall 2000. FGT intends to formally file for Federal Energy Regulatory Commission (FERC) approvals of the Phase IV expansion program in late 1998.

Q. To what extent will FGT be required to modify or upgrade the gas transportation system to serve Cane Island with the additional gas required?

Under present planning scenarios, FGT envisions that the Phase IV expansion will

primarily consist of additional compression capability installed in the Panhandle and West Leg portions of the pipeline system and line extensions of existing lateral branch lines. Looping of existing corridors to alleviate capacity constraints is not projected as being extensive. The Phase IV expansion of the FGT system should therefore be capable of implementation without incremental cost impact to existing and prospective customers.

Q. What incremental transportation charges will KUA and FMPA likely incur as a result of FGT's Phase IV expansion expenditures.

A. Transportation charges for incremental gas service will be equal to or slightly less than transportation charges currently accessed under Phase III tariffs. Transportation charges for Phase IV will, in no circumstances, exceed existing Phase III tariffs.

Q. Once implemented, will FGT's Phase IV expansion provide the necessary transportation capacity necessary to support the addition of a third unit at the Cane Island Power Park.

A. Yes. The natural gas supply at the delivery point to the Cane Island lateral will be fully adequate in terms of quantity and delivery pressure to support the Cane Island facilities.

Q. Does this complete your prefiled testimony?

A. Yes it does.

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

KISSIMMEE UTILITY AUTHORITY

FLORIDA MUNICIPAL POWER AGENCY

TESTIMONY OF STEVE L. SCHWIETERMAN

Docket NO. 980802-EM

July 27, 1998

Q. Please state your name and business address.

A. My name is Steve L. Schwieterman. My business address is 11401 Lamar, Overland Park, Kansas 66211.

Q. Who is your employer and what position do you hold?

A. I am employed by Black & Veatch $_{LLP}$ (Black & Veatch) as a transmission system engineer in the Electrical and Telecommunication Division.

Q. Please describe your responsibilities in that position.

A. As a transmission system engineer for Black & Veatch I am responsible for providing electrical engineering consultation for utility and non-utility clients. I am responsible for projects and technical assignments related to the preparation of electric system studies, economic studies, and long-range planning studies

Q. Please summarize your background and experience.

A. I received a Bachelors of Science degree in electrical engineering and a Masters in electrical engineering from the University of Missouri-Columbia I am a licensed professional engineer with membership in the Institute of Electrical and Electronics

Engineers and Power Engineering Society.

I have been employed by Black & Veatch since 1966 as an electrical engineer. Since that time I have provided planning services for many projects worldwide. Recent assignments include transmission practices reviews, long-range distribution planning studies, transmission system export evaluations, and transmission reliability evaluations for networks.

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to address the evaluation conducted to determine the transmission improvements required in conjunction with the proposed Cane Island Unit 3 and the estimated costs associated with the improvements

Q. Have you prepared any exhibits as part of your direct testimony?

A. Yes. I have prepared two Exhibits, Exhibit ___SLS-1 and Exhibit__SLS-2, which are attached and included as part of my testimony.

Q. Were there Subsections of the Cane Island Power Park Unit 3 Need for Power Application prepared by you or under your direct supervision?

A Yes Subsection 1A.2.9 was prepared by me or under my direct supervision

Q. Are you adopting this Subsection as part of you testimony?

A Yes, I am

Q. Are there any corrections to this Subsection?

A. Yes, corrections have been identified and included as Exhibit ___SLS-1. The corrections identified are minor and have no significant impact on the Need for Power Application.

Q. Have the Petitioners considered all associated transmission improvements that would be required in conjunction with the Petitioners proposed combined cycle unit addition, and included this in the economic evaluations?

Yes, both Petitioners have considered and included all transmission improvements that would be required in conjunction with the proposed combined cycle unit addition. In order to determine what transmission improvements would be required, a detailed transmission study was conducted to analyze the modifications necessary to facilitate the addition of the proposed combined cycle to the existing Cane Island Power Park site. The detailed study is provided as Exhibit ___SLS-2 and summarized in the following paragraphs.

The transmission modifications will require a new single circuit line that will be routed from the existing Cane Island substation along the power plant access road on the existing Cane Island to Clay Street 230 kV transmission line towers. The existing Cane Island to Clay Street line is a single circuit line installed on double circuit capacity poles. The new line will utilize the second position (west side) of these poles down to the CSX railroad. From the CSX railroad, the new transmission line will turn west and will be routed parallel to the CSX railroad right of way to a point near the southeast corner of the Intercession City Plant. The line will then parallel the south and west boundary fences of the Intercession City Plant. The line will then turn

east from the west fence of the Intercession City Plant switchyard. The transmission line is approximately 3 miles.

Q. What is the estimated cost of the Cane Island - Intercession City transmission line?

A. Based upon the analysis and estimates, the transmission line from Cane Island - Intercession City would cost $4,711,880 in 1998 dollars. This is by far the least cost option for the facility. If the Petitioners decided to pursue the option of adding a second transformer to the Clay Street station, the cost would be $5,989,263 including the reconductoring of the Clay Street - Hansel line. This option also requires the reconductoring of the Clay Street - Airport in the future at an additional cost of $2,191,140. Additional details are provided in Exhibit___SLS-2

Q. Why is the Cane Island - Intercession City transmission line needed?

A. Based upon load flow studies conducted utilizing the fiscal year 1998 base case databases from the Florida Reliability Coordinating Council (FRCC) for the 2001 summer peak, overloads occur without the addition of the Cane Island - Intercession City transmission line.

Without the addition of the Cane Island - Intercession City line, overload conditions exist for the Clay Street transformer during an outage of the Cane Island - Taft 230 kV line. For this reason an alternative plan which included the installation of a second Clay Street 230 - 69 kV transformer was analyzed. After conducting load flow studies based upon the installation of this second transformer, an overload condition for the Clay Street - Hansel 69 kV line occurs during an outage of the Cane Island -

Taft 230 kV line. In addition the Clay Street - Airport 69 kV line is almost overloaded during this same outage. This plan would require the addition of secondary lines for each of the overloaded lines or reconductoring.

KUA and FMPA then evaluated the installation of a new line from Cane Island to Intercession City. This new line results in no identified overload conditions It also represents the least cost alternative for eliminating system overloads. This new line will also eliminate or minimize the need to reconductor transmission lines on KUA's system in the future.

Q. Does this complete your prefiled testimony?

A. Yes, it does.

Corrections to Cane Island 3
Need for Power Application

1. On page 1A.2-15, line 11, the sentence should read "Street-Hansel 69 kV transmission line overloads, *thus* requiring reconductoring. Planning studies "

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

KISSIMMEE UTILITY AUTHORITY

FLORIDA MUNICIPAL POWER AGENCY

TESTIMONY OF BRUCE R. KNODEL

DOCKET NO. 980802-EM

JULY 27, 1998

Q. Please state your name and address.

A. My name is Bruce R. Knodel and my business address is 11401 Lamar Ave., Overland Park, Kansas 66211.

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

A I am employed by Black & Veatch $_{LLP}$ as a Senior Economist.

Q. Please describe your responsibilities in this position.

A. I am responsible for conducting utility planning and research projects related to feasibility studies, power supply alternatives (including conservation and demand-side management), deregulated market clearing price analysis, load forecasting, statistical analysis, economic and financial evaluations, market research studies, and sensitivity analysis studies.

Q. Please state your professional experience and educational background.

A. I have more than 20 years experience in the electric utility industry. Prior to joining Black & Veatch $_{LLP}$ in 1998, I was employed by Kansas City Power & Light Company in various professional and managerial capacities including: Economic Research

Analyst, Supervisor of Load Research and Forecasting, Manager of Economic Research, Director of Budgets & Forecasting, Director of Forecasting & Pricing, and Manager of Market Support Services. During my career I have had direct responsibility for technical activities including rate design, cost of service analysis, load research, load forecasting, market research and financial analysis. As Director of Budgeting & Forecasting I was responsible for the preparation, coordination and analysis of corporate budgets. As Manager of Market Support Services I was responsible for negotiating special contracts with large electric customers, providing technical and financial support services for non-regulated marketing activities and conducting market research functions.

I have previously presented expert testimony before the Missouri Public Service Commission, the Kansas Corporation Commission and the Federal Energy Regulatory Commission.

I graduated in 1974 from the University of Evansville with a Bachelor of Science Degree in Business Administration. In 1975, I graduated from Southern Illinois University with a Master of Science degree in Economics.

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

A. The purpose of my testimony is to present the evaluations that indicate that there are no conservation or demand-side management alternatives reasonably available which might mitigate or delay the construction of Cane Island Unit 3.

Q. Were subsections of the Cane Island Power Park Unit 3 Need for Power Application prepared by you or under your direct supervision?

A. Yes. Subsection 1A.5.0, contained in Exhibit ___ (KUA-1), was prepared by me or under my direct supervision.

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

A. Yes, I am.

Q. Please describe the material that is contained in Subsection 1A.5.0.

A. Subsection 1A.5.0 contains the results of analysis undertaken by the Kissimmee Utility Authority (KUA) and Florida Municipal Power Agency (FMPA) to assess the cost-effectiveness of DSM. In making a determination of the need for power, the Public Service Commission (PSC) is required to expressly consider the conservation measures taken by or reasonably available to the applicant or its members which might mitigate the need for the proposed plant. The PSC is also required to take into account whether the proposed plant is the most cost-effective alternative available

Q Please summarize the results of the analysis undertaken to evaluate the cost-effectiveness of potential DSM programs.

A. Approximately 70 different potential DSM programs, which were identified by Synergic Resources Corporation in the study of Electricity Conservation and Energy Efficiency in Florida, were evaluated to assess their cost-effectiveness. It was concluded that none of the programs evaluated represent a cost-effective alternative to the construction of the Cane Island Unit 3.

Q. What was the process by which potential DSM programs were evaluated?

A. The process used to evaluate the cost-effectiveness of DSM programs conforms to that required in Rule 25-17.008, Fla. Admin. Code. Specifically, the procedures used are those set forth in the Florida Public Service Commission Cost-effectiveness Manual For Demand Side Management Programs And Self Service Wheeling Proposals. The Florida Integrated Resource Evaluator (FIRE) spreadsheet, originally developed by Florida Power Corporation was used to assess the potential effectiveness of DSM programs.

Using the procedures specified in Rule 25-17.008 Fla. Admin. Code, FIRE provides a systematic framework for identifying the benefits and costs associated with specific DSM programs. Avoided utility costs are economically evaluated against DSM costs and load impacts to assess the effectiveness of the program over its useful life. Three DSM program cost / benefit tests are produced by the FIRE model and are used in considering DSM cost-effectiveness These tests are the Rate Impact Test (RIM), the Total Resource Cost Test (TRC) and the Participants Test. The results of the three cost-effectiveness tests for the DSM programs evaluated are shown in Table 1A.5-1 of Exhibit ___ (KUA-1)

Q. Please describe the three DSM tests used to evaluate DSM programs.

A. All the DSM effectiveness tests are based on the comparison of discounted present worth benefits to costs for a specific DSM program. Each test is designed to measure costs and benefits from a different perspecuve.

The Rate Impact Test is a measure of the expected impact on customer rates resulting

from a DSM program. The test statistic is the ratio of the utility's benefits (avoided supply costs and increased revenues) compared to the utility's costs (program costs, incentives paid, increased supply costs and revenue losses). A value of less than one indicates an upward pressure on rate levels as a result of the DSM program.

The Total Resource Cost Test measures the benefit / cost ratio by comparing the total program benefits (both the participant's and utility's) to the total program costs (equipment costs, supply costs, participant costs).

The Participants Test measures the impact of the DSM program on the participating customer. Benefits to the participant may include bill reductions, incentives paid and tax credits. Participant costs may include equipment costs, operation and maintenance expenses, equipment removal, etc.

Q. Which cost-effectiveness test was utilized by KUA and FMPA in evaluating DSM programs?

A. All three cost-effectiveness tests were calculated for each DSM programs analyzed and considered in our evaluation. As a practical matter, cost-effectiveness based upon the rate impact test plays a critical role in assessing the practicality of implementing any DSM program. Based on this criteria, no DSM programs that were evaluated were considered to be cost-effective.

Q. Does this conclude your direct prefiled testimony?

A. Yes, it does.

BEFORE THE PUBLIC SERVICE COMMISSION

KISSIMMEE UTILITY AUTHORITY

FLORIDA MUNICIPAL POWER AGENCY

TESTIMONY OF SCOTT D. CARPENTER

DOCKET NO. 980802-EM

JULY 27, 1998

Q. Please state your name and address.

A. My name is Scott D. Carpenter and my business address is 11401 Lamar, Overland Park, Kansas 66211.

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

A. I am employed by Black & Veatch $_{LLP}$ (Black & Veatch) as a system planning and project analysis consultant in the Plant Services Department of the Power Division.

Q. Please describe your responsibilities in that position.

A. As a system planning consultant for Black & Veatch I am responsible for providing consulting services for utility and non-utility clients. The consulting services encompass a wide variety of services including: load forecasts, conservation and demand-side management evaluations, reliability criteria and evaluations, development of generation unit addition alternatives, optimal generation expansion modeling, production cost modeling, economic and financial evaluations, feasibility studies, pro forma analysis, and power market studies.

Q. Please state your professional experience and educational background.

A. I received a Bachelors of Science degree in electrical engineering from Iowa State University in 1992. I am a Associate Member of the Institute of Electrical and Electronics Engineers. I have been employed by Black & Veatch for over 3 years providing power system planning and independent engineering (due diligence) consultancy services for utilities located in the United States and overseas. I have provided system planning and/or independent engineering consulting services for several domestic utilities including: Kissimmee Utility Authority (KUA), Florida Municipal Power Agency (FMPA), Black Hills Power & Light (BHPL), San Antonio Public Service and the Kansas City Board of Public Utilities. I have provided consulting services to several overseas utilities including Botswana Power Corporation (BPC) located in Botswana, Africa, and Queensland Electric Company (QEC) located in Queensland, Australia.

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

A. The purpose of my testimony is to address issues related to the selection of economic parameters contained in Subsections 1A.3.1, 1B.4.1 and 1C.4.1 of Exhibit ___KUA-1, the Cane Island Power Park Unit 3 Need for Power Application. I will describe the methodology applied in the development of the load forecast estimate for the proposed Exposition Center, which is presented in Subsection 1B.5.4 of Exhibit ___KUA-1, and also discuss the financial strength of KUA with respect to the construction of Cane Island Unit 3.

Q. Have you prepared any exhibits as part of your testimony?

A. Yes. I have prepared two Exhibits, Exhibit ___ SDC-1 and Exhibit ___ SDC-2, which

are attached and included as part of my testimony.

Q. Were subsections of the Cane Island Power Park Unit 3 Need for Power Application prepared by you or under your direct supervision?

A. Yes. Subsections 1A.3.1, 1B.4.1, 1B.5.4, 1B.14.0, and 1C.4.1.

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

A. Yes. I am.

Q. What was the basis for selecting the escalation rates listed in Subsection 1A.3.1, 1B.4.1, and 1C.4.1 of Exhibit ___KUA-1?

A. Escalation rates were based on an analysis of the All-Items Consumer Price Index (CPI). In general, the Consumer Price Index (CPI) is a measure of the average change in price over time in a fixed market basket of goods and services bought by consumers for day-to-day living. The All-Items CPI for the U.S. is the broadest, most comprehensive index, and is often quoted as the source for the "rate of inflation."

The attached Exhibit ___ SDC-1 presents the historical CPI trends and was used to estimate future inflation rates. Exhibit ___ SDC-1 shows historical annual percent changes in both the All-Items CPI and the All-Items CPI minus food and energy goods. As indicated in Exhibit ___ SDC-1, the rate of general inflation has decreased and stabilized to within a range of 2.0 - 2.5 percent. Because of this, a 2.5 percent inflation rate was assumed for the general inflation and annual capital cost escalation rates.

The escalation rate for operation and maintenance (O&M) costs was set equal to the general inflation rate plus one-half percent. The one-half percent adder was included to account for 1). higher labor costs associated with increasing demand for skilled labor within a shrinking skilled labor pool, and 2). increased demand for combustion turbine components resulting from significant coincident major overhaul activities expected for large numbers of ageing combustion turbine based generating units.

Q. What was the basis for selecting the bond interest, present worth discount, and interest during construction rates listed in Subsections 1A.3.1, 1B.4.1, and 1C.4.1?

A. The bond interest rate was selected based on statistics provided by the Federal Reserve and published in the Federal Reserve's H.15 release. The H.15 release is published weekly and contains daily interest rates for selected U.S. Treasury and private money market and capital market instruments. Weekly bond interest rates for the financing of State and local projects was collected for the period 1/97 through 6/98 and averaged to calculate the Bond Interest Rate. The historical data used for the analysis is presented in Exhibit ___ SDC-2.

The present worth discount rate and interest during construction interest rates were set equal to the bond interest rate.

The fixed charge rate was calculated based on a 30-year bond term including principle and interest, a 1-year debt service reserve fund, interest earnings credit based on the bond interest rate, a 2.9 percent bond issuance fee, and 1 0 percent for property insurance. Data for bond issuance fees, property insurance and bond term were based on financing terms which are representative for similar municipally financed projects.

Q. What is KUA's financial position with respect to the effect on KUA's debt coverage subsequent to the construction of Cane Island Unit 3?

A. KUA is in a strong position to finance its ownership share of Cane Island Unit 3. KUA's outstanding revenue bonds are fully insured and thus carry a AAA risk rating. KUA's debt service coverage ratio for the fiscal year ended September 30, 1997 was 2.83, and has averaged 2.97 over the past three fiscal years. While interest coverage ratios will be somewhat lower in upcoming years due to higher interest expenses, the coverage ratios are projected to significantly exceed KUA's minimum target of 1.50. KUA's self-imposed minimum target coverage is in turn higher than that defined in the current revenue bond resolutions, which prescribe that annual net revenues not be less than 1.25 times the bond service requirement.

Q. Describe the proposed World Exposition Center (Expo Center) development.

A. The developers of the World Exposition Center (Expo Center) are planning a major commercial development on an 800-acre site in the northwest corner of KUA's service territory in Osceola County. The construction of this world-class, mixed-use facility is already in the planning stages and is expected to be operational in 2000.

Phase I of the current plan, to be completed by the first part of 2000, includes a 2.4 million sq ft exposition hall, 1.3 million sq ft outside parking area, and a 0.6 million sq ft parking garage. Phase IA, to be completed by the first part of 2001, includes a 1.0 million sq ft hotel, 1.3 million sq ft County convention center, and 79,000 sq ft of commercial office space. Phase II of construction will be completed during 2002-2004 in stages after Phase I and IA are operational. Phase II facilities include three resort hotels totaling 1.6 million sq ft, two office buildings totaling 0.5 million sq ft, a

1.0 million sq ft retail and entertainment complex, a public safety facility, and 2.0 million sq ft of additional parking.

Q. Describe the data sources used for the development of the estimates of peak demand and energy of the proposed Expo Center.

A. Electric demand of the Expo Center was estimated using data compiled by the Energy Information Administration (EIA) contained in the most recent Commercial Buildings Energy Consumption (CBEC) survey. The survey is conducted every three years by the EIA for the purpose of developing estimates of annual peak demand and energy usage, per sq. ft., for various building activities. The last survey conducted was compiled during 1996. The target population for the CBEC survey consists of all commercial buildings in the United States with more than 1,000 sq. ft. of floorspace. A commercial building is defined as any enclosed structure with more than 50 percent of its floorspace devoted to activities other than residential, industrial or agricultural uses. Major categories of commercial buildings tabulated in the report include education, food sales, food service, health care, lodging, mercantile and service, office, public assembly, public order and safety, religious worship, warehouse and storage, other and vacant.

Table 1B.5-2 of Exhibit ___KUA-1 presents the per sq. ft. peak demand and energy consumption estimates derived from the survey. Survey data was statistically analyzed and divided into 25th percentile, median, and 75th percentile categories. For forecasting purposes, the 25th percentile data was used for the low demand forecast, the median was used for the base demand forecast, and the 75th percentile data was used for the high demand forecast.

Q. Describe the methodology used in the development of the estimates of peak demand and energy of the proposed Expo Center.

A. To develop the load forecast scenarios, the consumption estimates presented Table 1B.5-2 of Exhibit ___KUA-1 were multiplied by the estimated square footage of each Expo Center building and summed to develop the total annual peak demand and energy requirements for the entire Expo Center. It was assumed that the Expo Center's peak demand would be coincident with KUA's system peak demand. However, peak demands associated with the parking areas were excluded from the estimate of total peak demand total based on the assumption that these demands will occur after KUA's coincident system peak demand.

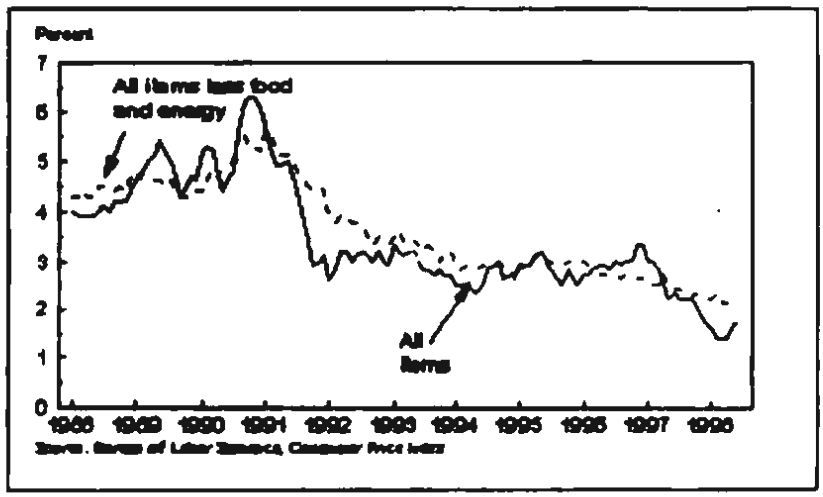
Q. Were any additional spin-off loads, which may result from the Expo Center development, included in the load forecast?

A. No. The Expo Center forecast only includes the projected direct loads of the Expo Center. Additional loads can be expected from the addition of jobs and commercial development after construction of the Expo Center begins. However, it was assumed that these additional loads would be accounted for, to some extent, in the high band forecast.

Q. Does this complete your prefiled testimony?

A. Yes it does.

CPI-U 12-month changes, 1988 to present



Historical Municipal Bond Interest Rates Federal Reserve H.15 Release	
Month/Day/Year	Interest Rate
01/02/1997	5.70
01/09/1997	5.71
01/16/1997	5.72
01/23/1997	5.72
01/30/1997	5.73
02/06/1997	5.70
02/13/1997	5.62
02/20/1997	5.56
02/27/1997	5.65
03/06/1997	5.70
03/13/1997	5.75
03/20/1997	5.78
03/27/1997	5.81
04/03/1997	5.88
04/10/1997	5.88
04/17/1997	5.87
04/24/1997	5.87
05/01/1997	5.77
05/08/1997	5.71
05/15/1997	5.67
05/22/1997	5.66
05/29/1997	5.67

Historical Municipal Bond Interest Rates Federal Reserve H.15 Release	
Month/Day/Year	Interest Rate
06/05/1997	5.60
06/12/1997	5.52
06/19/1997	5.48
06/26/1997	5.53
07/03/1997	5.53
07/10/1997	5.38
07/17/1997	5.32
07/24/1997	5.28
07/31/1997	5.23
08/07/1997	5.33
08/14/1997	5.42
08/21/1997	5.43
08/28/1997	5.45
09/04/1997	5.42
09/11/1997	5.44
09/18/1997	5.33
09/25/1997	5.36
10/02/1997	5.34
10/09/1997	5.38
10/16/1997	5.42
10/23/1997	5.42
10/30/1997	5.35

Historical Municipal Bond Interest Rates Federal Reserve H.15 Release	
Month/Day/Year	Interest Rate
11/06/1997	5.38
11/13/1997	5.34
11/20/1997	5.31
11/27/1997	5.29
12/04/1997	5.25
12/11/1997	5.21
12/18/1997	5.17
12/25/1997	5.14
01/01/1998	5.15
01/08/1998	5.07
01/15/1998	4.96
01/22/1998	5.03
01/29/1998	5.11
02/05/1998	5.11
02/12/1998	5.08
02/19/1998	5.07
02/26/1998	5.14
03/05/1998	5.25
03/12/1998	5.20
03/19/1998	5.19
03/26/1998	5.20
04/02/1998	5.19

Historical Municipal Bond Interest Rates Federal Reserve H.15 Release	
Month/Day/Year	Interest Rate
04/09/1998	5.18
04/16/1998	5.21
04/23/1998	5.25
04/30/1998	5.32
05/07/1998	5.26
05/14/1998	5.23
05/21/1998	5.16
05/28/1998	5.13
06/04/1998	5.13
06/11/1998	5.08
06/18/1998	5.11
06/25/1998	5.14

BEFORE THE PUBLIC SERVICE COMMISSION

KISSIMMEE UTILITY AUTHORITY

FLORIDA MUNICIPAL POWER AGENCY

TESTIMONY OF ABANI KUMAR (BEN) SHARMA

DOCKET NO. 980802-EM

JULY 27, 1998

Q. Please state your name and address.

A. My name is Abani Kumar (Ben) Sharma and my business address is 1701 West Carroll Street, Kissimmee, Florida 34741.

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

A. I am employed by Kissimmee Utility Authority (KUA) as Director of Power Supply.

Q. Please describe your responsibilities in that position.

A. I supervise KUA's Power Supply department. The department currently has a staff of 82 employees and an annual operating budget of $44 million. The department consists of three divisions, which include the operation and maintenance division, system control division and planning division. As part of my responsibilities, I am involved in the planning, permitting and construction new generation facilities, fuel supply and transportation contracting, and purchase power negotiations and contracting. As Director of Power Supply, I am accountable to the President and General Manager and the Board of Directors on all matters concerning the department. I have held this position for nine years.

Q. Please state your professional experience and educational background.

A. I have more than 25 years of professional engineering experience including 20 years of utility experience. Prior to joining KUA, I was employed by the City of Tallahassee Electric Department during the years 1979 through 1989. I began my employment with the City of Tallahassee Electric Department as a System Planning Engineer. I was promoted to Superintendent of Planning and Engineering in 1981 and after certain reorganization renamed as Superintendent of Planning in 1988. During my period of employment with the City of Tallahassee Electric Department, I was responsible for performing various planning and engineering activities including preparation of Ten-Year Site Plans, initiation of the Jackson Bluff Hydro Electric Project, including completion of the feasibility study, acquisition of DOE grants of $1.75 million and obtaining the construction and operating license from FERC.

My background includes 4 years of experience with Southern Engineering Company of Georgia. I was responsible for preparation of distribution expansion plans, long-range capacity expansion plans, system design studies and preparation of Power Requirements Studies necessary for cooperatives to acquire REA (now RUS) and Cooperative Financing Corporation (CFC) loans.

I am a registered professional engineer in the States of Florida and Georgia. I graduated with a bachelors degree in electrical engineering in 1962 from Banaras Engineering College in Banaras, India and a masters degree in electrical engineering in 1965 from the Georgia Institute of Technology in Atlanta, Georgia.

I also serve as Chairman of Florida Gas Utility (FGU), a non-profit organization which

procures natural gas and manages natural gas transportation for its members. Currently FGU has 17 municipal members and three full service industrial members.

As for my community involvement, I am President of the Rotary Club of Kissimmee-West.

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

A. The purpose of my testimony is to provide background information about KUA's system, discuss KUA's need for additional generating resources and identify witnesses who will provide testimony and exhibits supporting the need for Cane Island Unit 3, demonstrate KUA has provided adequate assurances regarding available primary and secondary fuel to serve the proposed facility on a long term basis at a reasonable cost, demonstrate KUA has provided appropriate assurances that sufficient natural gas pipeline capacity will be available to transport natural gas to the combined cycle unit, demonstrate KUA adequately explored and evaluated the availability of purchase power, and demonstrate that Cane Island Unit 3 is the most cost effective alternative available.

Q. Have you prepared any exhibits as part of your testimony?

A. Yes. I have prepared eight exhibits, Exhibits ___ AKS-1 through ___ AKS-8 which are attached and included as part of my testimony.

Q. Were there subsections of the Cane Island Power Park Unit 3 Need for Power Application prepared by you or under your direct supervision?

A. Yes. Subsection 1B.2.0 contained in Exhibit ___ KUA-1 was prepared under my direct supervision.

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

A. Yes, I am.

Q. Are there any corrections to this subsection?

A. Yes. There are several typographical corrections shown in Exhibit ___ AKS-1.

Q. Please describe the operations of KUA.

A. KUA's load and electrical characteristics have many similarities to other Peninsular Florida utilities. Except during years with extreme winter weather conditions, KUA's system peak demand occurs during the summer months. KUA's system peak demand during 1997 was 216 MW and KUA reached an all time peak demand of 235 MW on June 17, 1998 which is 11 MW higher than the base case projection for the 1998 summer peak demand.

KUA is a member of the Florida Municipal Power Pool (FMPP), along with Orlando Utilities Commission (OUC), the Florida Municipal Power Agency (FMPA) All Requirements Project, and the City of Lakeland. FMPP operates as a power pool conducting joint unit commitment and dispatch for its members. Commitment and dispatch services for FMPP are provided by OUC. Each member of the FMPP retains the responsibility of adequately planning its own system to meet native load and reserve requirements.

Q. Please describe the existing KUA generating system.

A. KUA owns and operates or has ownership interest in generating units comprised of several technologies, including nuclear, coal fired, diesel, simple cycle combustion turbine,

and combined cycle. Table 1B.2-1 of Exhibit ___ KUA-1, the Crane Island Power Park Unit 3 Need for Power Application, provides a summary of KUA's existing generating resources. The following paragraphs describe KUA's generating assets and ownership interests in detail.

KUA owns and operates eight diesel generating units ranging in age from 15 to 39 years. All of these diesel units are located at the Roy B. Hansel Generating Station in Kissimmee. Six of these diesel units are fueled by natural gas with No. 2 oil as pilot oil while the remaining two burn No. 2 oil only. The total nameplate capacity of the eight diesels is 18.35 MW. In addition, KUA owns and operates a natural gas fired (with No. 2 oil as backup) combined cycle plant, which is also located at the Hansel site. This plant consists of a 35 MW (nameplate) combustion turbine which provides waste heat for two 10 MW (nameplate) steam turbine generators. The total nameplate generating capability at the Hansel site is approximately 73.35 MW.

KUA and FMPA are both 50 percent joint owners of Cane Island Units 1 and 2. Unit 1 is a simple cycle General Electric LM6000 aeroderivative combustion turbine with a nameplate rating of 42 MW. Unit 2 is a 1 x 1 General Electric Frame 7EA combined cycle with a nameplate rating of 120 MW. KUA's 50 percent ownership share of the Cane Island Units is 81 MW (nameplate).

KUA owns a 0.6754 percent interest, or 6 MW (nameplate), in Florida Power Corporation's (FPC) Crystal River Nuclear Unit 3, located in Citrus County, Florida. KUA also has a 4.8193 percent ownership interest, or 22.3 MW (nameplate), in Orlando Utilities Commission's (OUC) Stanton Energy Center Unit 1 and a 12.2 percent, or

10 MW (nameplate), of OUC's Indian River Combustion Turbine Project Units A and B.

Q. Please describe KUA's existing purchase power resources and entitlement.

A. KUA is a member of the Florida Municipal Power Agency (FMPA), a legal entity organized in 1978 and existing under the laws of Florida. During 1983, FMPA acquired an 8.8060 percent (73.9 MW) undivided ownership interest in Florida Power & Light's (FPL's) St. Lucie Unit 2 on behalf of KUA and 14 other members of FMPA. KUA's entitlement share of this unit, based on a power purchase contract, is 0.8282 percent (6.9 MW). FMPA has also entered into a Reliability Exchange Agreement with FPL under which half of KUA's entitlement share of capacity and energy will be supplied from St. Lucie Unit No. 1 and half from Unit No.2.

In addition to the above resources, KUA purchases electric power and energy from other utilities. KUA has one contract to purchase 20 MW of firm capacity from OUC through December 2003. This contract also provides for supplemental purchases up to an additional 50 MW if the capacity is available from OUC. KUA has a second contract with OUC for Stanton 2 unit power purchases. KUA is purchasing 30 MW of this capacity for 1998 and 1999, and 40 MW in 2000. KUA has a 1.80725 percent (7.9 MW) entitlement share of Stanton 1 through the FMPA Stanton Project and a 7.6628 percent (33.3 MW) share of Stanton 2 through the FMPA Stanton II Project. The Stanton 2 percentage includes recently acquired Homestead and Lake Worth shares which total 3.8314 percent. Table 1B.2-2 of Exhibit ___ KUA-1 presents KUA's purchase power resources.

Q. Please describe KUA's participation in the energy broker system.

A. KUA is a member of the Florida Reliability Coordinating Council (FRCC). The FRCC

has established an energy broker system which provides economic interchange of electric energy between member utilities, including KUA. KUA has purchased and sold energy through this broker system, and intends to continue such transactions whenever conditions are favorable. Currently, these economy transactions are conducted through the Florida Municipal Power Pool (FMPP).

Q. Please describe KUA's transmission system.

A. Electric power and energy supplied from KUA-owned generation and purchased capacity is delivered through 230 kV and 69 kV transmission lines to eight distribution substations. KUA provides electric service to retail customers primarily by 13.2 kV feeder circuits from the distribution substations.

KUA has direct transmission interconnections with: (i) FPC, delivered at 69 kV from the FPC Lake Bryan substation and at 230 kV at OUC's Taft substation; (ii) OUC delivered from two 230 kV lines from Cane Island, one 230 kV line from the Taft substation, and a 230/69 kV autotransformer at Taft substation serving KUA's 69 kV line; (iii) the City of St. Cloud, Florida now being operated by OUC, at KUA's 69 kV interconnection with St. Cloud's transmission facilities; and (iv) TECO, one 230 kV circuit through the interconnection from the Osceola substation.

Q. Has KUA provided adequate assurances regarding available primary and secondary fuel to serve the proposed facility on a long-term and short-term basis at a reasonable cost?

A. Yes, KUA has reviewed numerous forecasts and determined that there will be adequate supply capacity for natural gas and oil to fuel the proposed combined cycle unit. KUA

has reviewed the DRI natural gas forecast contained in Appendix 1A.9.1 of Exhibit ___ KUA-1. DRI projects that natural gas supply increases are expected to be adequate to possibly excessive by 2000. This is because (1) reserve additions have exceeded production during the past 2 years in the United States and, (2) by 2000, pipeline capacity additions of 5 to 10 Bcf/day from Canada, the Rocky Mountains, and the deep Gulf of Mexico are expected to create a "gas-bubble" even though gas demand is projected to grow by up to 7 Bcf/day. Gas prices are expected to weaken as new supply sources are added to the US market. DRI predicts swift demand growth acting to absorb the new supplies and gas markets permitting a return to a better balance after 2000. DRI expects demand growth for 1997 to 2000 to average about 1.9 Bcf/day per year.

Florida Gas Transmission Company (FGT) is an open access interstate pipeline company transporting natural gas for third parties through its pipeline system extending from South Texas to Miami, Florida. FGT is a subsidiary of Citrus Corporation, which in turn, is jointly owned by Enron Corporation, the largest integrated natural gas company in America, and Sonat, Inc., one of the largest independent producers of natural gas in the United States.

The FGT pipeline system accesses a diversity of natural gas supply regions including:

- Permian Area (West Texas and New Mexico).
- Anadarko Basin (Texas, Oklahoma and Kansas).
- Fort Worth and East Texas Basins.
- Arkona Basin (Oklahoma and Arkansas).
- Texas and Louisiana Gulf Areas (Gulf of Mexico).
- Black Warrior Basin (Mississippi and Alabama).

- Louisiana - Mississippi - Alabama Salt Basin.
- Mobile Bay.

FGT's total receipt point capacity is in excess of 3.0 billion cubic feet per day and includes connections with 14 interstate and 10 intrastate pipelines to facilitate transfers of natural gas into its pipeline system. FGT reports a current delivery capability to Peninsular Florida in excess of 1.4 billion cubic feet per day.

The Cane Island Power Park is served from an existing FGT system delivery point on the St. Petersburg Lateral located in northwestern Osceola County. From the custody metering installation at the delivery point, the lateral pipeline (the Cane Island Lateral) runs south and then easterly to service the existing generation facilities at the Cane Island site.

The Cane Island Lateral is a 20 inch diameter pipeline completed in 1993 and is sized for the supply of natural gas at the ultimate plant development level (approximately 1,000 MW of combined cycle capacity) of the Cane Island site. Subsequent to the completion of the lateral pipeline, a tap off serving the Intercession City Plant of Florida Power Corporation (FPC) has been completed from the Cane Island Lateral. This sublateral, installed in 1996, is an 8 inch diameter pipeline with an estimated flow capacity of 20 to 30 million cubic feet per day at present-day FGT mainline operating pressures. Under the contractual arrangements between KUA and FPC, the service to the Intercession City Plant is on an "as available" basis and is interruptible should KUA and FMPA require the gas supply for operation of the Cane Island facilities.

The existing infrastructure of the FGT system following completion of the Phase III

expansion in February 1995 allows the flexibility to accommodate capacity expansion by an increase of mainline compression with minor looping of lines to alleviate bottlenecks. This expansion will be accomplished as part of the FGT Phase IV expansion program discussed below.

Q. Has KUA provided appropriate assurances that sufficient natural gas pipeline capacity will be available to transport natural gas to the proposed combined cycle unit?

A. Yes, KUA has provided appropriate assurances that sufficient natural gas pipeline capacity will be available to transport natural gas to the proposed combined cycle unit. We have provided appropriate assurances through several measures to ensure pipeline capacity is available including: utilizing existing pipeline capacity, discussed with FGT proposed plans and capacity required, prepared transportation requests through the open season of FGT, and retained membership in Florida Gas Utilities (FGU). Mr. Jim Dowden, Regional Vice President - Marketing for FGT will provide testimony regarding the availability of natural gas transportation capacity.

Q. Has KUA adequately explored and evaluated the availability of purchase power from other electric utilities and independent power producers?

A. Yes, KUA conducted a two-phase evaluation of purchased power alternatives from a request for proposals (RFP) (RFP #004-97) for purchased power issued May 28, 1997. The RFP is contained in Appendix 1B.16.3 in Exhibit ___ KUA-1. The comparison of purchase power bids included applicable transmission rates, transmission upgrade costs, and loss percentages. Certain non-price items were also included in the evaluation including pricing terms and flexibility, supply availability for economy transactions,

dispatchability, fuel risks, transmission path, commercial viability of technology and potential environmental effects. The analysis results indicated that KUA's self-build option provided costs lower than all purchase bids.

KUA's RFP was developed by KUA and R.W. Beck and requested proposals for electric capacity and energy to satisfy up to 80 MW of KUA's projected requirements for the period from 2001 through 2030. The RFP requested proposals for base, intermediate or peaking capacity. The minimum capacity required for bidding was 10 MW with a minimum term of three years.

KUA received 22 proposals from 13 bidders. These proposals are summarized in Exhibit ___AKS-2.

The Stage I evaluation focused on the issue of completeness of the bid packages and satisfaction of minimum requirements, but did not address issues of price, operating characteristics or performance. The minimum requirements were delineated in a Minimum Requirements Form contained in Appendix 1B.16.3 in Exhibit ___ KUA-1.

During the Stage I evaluation, letters were sent and responses received from nine of the bidders requesting clarification on several minor issues. During the Stage I evaluation, proposals from PECO Energy and Energy Pacific were eliminated for failing to meet the minimum requirements of the RFP.

As a result of the Stage I evaluation, 11 bidders with 20 proposals totaling 1,600 MW were selected for the Stage II evaluation. The 20 proposals are summarized in Exhibit

___AKS-3.

In the Stage II evaluation, the 11 bidders were sent clarifying questions to enable the bids to be compared on an equal basis. The following presents a brief summary of the proposals offered by each of the bidders.

Constellation Power, Inc.. Constellation offered an 80 MW, 20 year power purchase from a 700 MW 2x1 Westinghouse 501G combined cycle plant to be built in Hardee County, Florida.

City of Lakeland Electric & Water. The City of Lakeland Electric & Water (Lakeland) offered an 80 MW, 10 year unit power purchase from a coal-fired ABB pressurized fluidized bed (PFB) repowering of McIntosh Units 1 and 2.

LG&E Energy Marketing. LG&E Energy Marketing proposed to sell KUA 80 MW of capacity and associated energy for a term of between 5 and 30 years. The capacity would be dispatchable between a minimum load of 48 MW and a maximum load of 80 MW. The power would come from a unit to be built on a confidential site in Central Florida. The power would be delivered from the FPC control area and would be supplemented by LG&E Energy Marketing's system power portfolio to make it 100 percent available. LG&E Energy Marketing's proposal makes two specific offers. The first is joint ownership in a 500 MW facility. The second calls for KUA to build, own, and operate a larger unit and sell LG&E Energy Marketing the excess capacity and energy.

NP Energy, Inc. NP Energy, Inc. made three proposals. The first proposal called for KUA and FMPA to construct a 240 MW unit at Cane Island. KUA would retain the 80

MW requested in the RFP and FMPA would retain the long-term 120 MW requested in FMPA's RFP. The remaining 40 MW would be sold to NP Energy, Inc. for a 10 year period. The second proposal was to sell KUA an 80 MW 5x16 strip on an annual basis for 10 years. The third proposal was to sell KUA an 80 MW 5x16 strip on a seasonal basis.

Panda Energy International, Inc. Panda Energy International, Inc. proposed to sell 80 MW of purchased capacity and energy for a term of 20 years. The power would be supplied from a 500 MW 2x1 Westinghouse 501F merchant plant to be built in Fellsmere, Florida and wheeled over Florida Power & Light's system.

Southern Wholesale Energy. Southern Wholesale Energy offered five 80 MW proposals. The first three were 5x16, 7x16 and 7x24 strips. The other two proposals were for peaking and intermediate capacity. Southern Wholesale Energy's proposals required transmission import capacity into the State.

Stewart & Stevenson International. Stewart & Stevenson International offered a proposal to provide a turnkey power generation project at Cane Island In a phased approach, Stewart and Stevenson International proposed to install a LM6000PD combined cycle plant and to convert Cane Island Unit 1 into a LM6000PD.

Tarpon Power, Inc. Tarpon Power, Inc. offered two proposals for 80 MW for a term of 20 years. The power would come from either a 1,500 or 750 MW project that Tarpon Power, Inc. would develop in Hardee County, Florida. The projects would use the Westinghouse 501G combustion turbines. One proposal is for capacity from the 1,500

MW project and one from the 750 MW project.

Tenaska Energy Partners, Inc. Tenaska Energy Partners, Inc. proposed to provide KUA with an ownership share in the Tenaska-Lakeland Combined Cycle Project. The Project would be a 2x1 Westinghouse 501G combined cycle located at the McIntosh site Tenaska Energy Partners, Inc. offered to initially buy back 40 MW of KUA's 80 MW ownership share with an annual reduction of the buy back capacity through the year 2007, when KUA would then receive their entire 80 MW ownership share.

Indeck Energy Services. Indeck Energy Services proposed to provide KUA with 80 MW of capacity and energy for a term of 20 years from a 500 MW combined cycle plant. Indeck Energy Services offered two options. One for municipal financing and one for private financing.

Progress Energy Corporation. Progress Energy Corporation proposed a sale of 80 MW of capacity and energy for a 7 year term. The capacity and energy would be from a 2x1 Westinghouse 501F combined cycle.

After receiving the responses from the clarifying questions, KUA selected 11 bids along with KUA's self-build combined cycle option for modeling with the Stage II Screening Model developed by R.W. Beck. The proposals evaluated are shown in Exhibit___AKS-4.

LG&E Energy Marketing's second offer, which called for KUA to build, own, and operate a larger unit and sell LG&E Energy Marketing the excess capacity and energy

was judged to be no different that KUA's self build option and was not included in the Stage II Screening Model.

NP Energy, Inc.'s first proposal to KUA, which was for KUA and FMPA to construct a 240 MW combined cycle unit at Cane Island and sell 40 MW of capacity to NP Energy, Inc. was judged to be no different than KUA's self build option and was not included in the Stage II Screening Model. NP Energy, Inc.'s second proposal for a 5x16 strip of 80 MW for 10 years violated KUA's basic RFP requirement to identify the resource that will provide the capacity and energy, but was included in the Stage II Screening Model because KUA received very few short-term bids. NP Energy, Inc.'s third proposal of a 5x16 strip of 80 MW for 10 years on a seasonal basis also violated the requirement to identify the resource that was supplying the capacity and energy. Since KUA was seeking annual capacity and since NP Energy, Inc.'s second proposal was being evaluated in the Stage II Screening Model, NP Energy Inc.'s third proposal was not included in the Stage II Screening Model.

Southern Wholesale Energy's five proposals involved capacity and energy that originated from outside the State of Florida. Southern Wholesale Energy formally requested transmission from Florida Power & Light (FPL) and Florida Power Corporation (FPC). FPC responded and denied Southern Wholesale Energy's request on the grounds that no transmission import capacity exists at their Florida-Georgia interface. No communication was received indicating that any other entities were capable of providing the necessary transmission services. Therefore, the five Southern Wholesale Energy proposals were not included in the Stage II Screening Model.

Tenaska Energy Partners, Inc. proposal for KUA to participate in the Tenaska-Lakeland Combined Cycle Project was not included in the Stage II Screening Model because Lakeland withdrew from the Project and a replacement participant was not identified.

The Stage II Screening Model evaluated the cost of each bid on a cumulative present worth basis. The evaluations were conducted over 7, 15 and 20 year periods. To preserve the confidential nature of the pricing of the proposals, only the percentage differences between the self-build option and the proposals are presented. Exhibit___AKS-5 through Exhibit___AKS-7 present the results of the Stage II Screening Model.

In addition to the Stage II Screening Model, KUA conducted a non-price evaluation of the proposals. A total of 40 scoring points were assigned to the attributes considered in the nonprice evaluation.

The results of the non-price evaluation are presented in Exhibit___AKS-8. Based on the results of the Stage II Screening Model and the non-price evaluation, in which the installation of a self-build option of Cane Island 3, the 1x1 F-class combined cycle was clearly the least cost long-term alternative and preferred alternative in the nonprice evaluation, KUA decided to pursue the installation of Cane Island 3.

Q. Has KUA adequately explored and evaluated the availability of purchase power from qualifying facilities and non-utility generators?

A. Yes. The RFP process did not exclude qualifying facilities or non-utility generators. Furthermore, we know of no existing or proposed qualifying facilities in KUA's service

area.

Q. Does this complete your prefiled testimony?

A. Yes, it does.

Corrections to Cane Island 3
Need for Power Application

1. On Page 1B.2-2, for the line with Hansel Unit No. 8, under the expected retirement (month/year) column, change "-/98" to "01/03".

RFP Responses					
No.	Bidder Name	Number Of Bids	No.	Bidder Name	Number Of Bids
1	Constellation Power, Inc.	1	8	Tarpon Power, Inc.	2
2	City of Lakeland Electric & Water	1	9	Tenaska Energy Partners, Inc.	1
3	LG&E Energy Marketing	2	10	Indeck Energy Services	2
4	NP Energy, Inc.	3	11	Progress Energy Corporation	1
5	Panda Energy International, Inc.	1	12	PECO Energy	1
6	Southern Wholesale Energy	5	13	Energy Pacific	1
7	Stewart & Stevenson International	1	Total Number of Proposals		22

Summary of Stage 1 Evaluation			
Proposal	Bidder Name	Type of proposal *(System or Unit Purchase)*	Capacity (MW)
1	Constellation Power, Inc.	Unit Purchase	80.0
2	City of Lakeland Electric & Water	Unit Purchase	80.0
3	LG&E Energy Marketing (A) Alternative One (B) Alternative Two	 Unit Purchase[1] Unit Purchase[1]	 80.0 80.0
4	NP Energy, Inc. (A) FSO Annual Option (B) FSO Season Option © AO Option	 Unit Purchase Unit Purchase Unit Purchase	 80.0 80.0 80.0
5	Panda Energy International, Inc.	Unit Purchase	80.0
6	Southern Wholesale Energy (A) 5x16 Strip (B) 7x16 Strip © 7x24 Strip (D) Intermediate Purchase (E) Peaking Purchase	 System Purchase System Purchase System Purchase System Purchase System Purchase	 80.0 80.0 80 0 80.0 80.0
7	Stewart & Stevenson International	Unit Purchase[2]	120.0
8	Tarpon Power, Inc. (A) TP1 (B) TP2	 Unit Purchase [1] Unit Purchase [1]	 80 0 80.0
9	Tenaska Energy Partners, Inc.	Unit Purchase [2]	40.0
10	Indeck Energy Services (A) Option A (B) Option B	 Unit Purchase[1] Unit Purchase	 80.0 80.0
11	Progress Energy Corporation	Unit Purchase	80.0
TOTAL			1,600.0

(1) Unit purchase offer included the option for KUA ownership.
(2) Unit purchase only offered ownership options.
Note: Of the 22 proposals received, 16 were long-term (more than 5 years) and 6 were short-term (5 years or less; 5 were system purchases and 17 were unit or plant purchases; of the 17 unit or plant purchases, all were new unit or plant constructions; proposal 9 is initially 40 MW and ramps to 80 MW by 2011.

Proposals Evaluated at Stage II	
Proposal Number	Bidder Name
1	Constellation Power, Inc.
2	City of Lakeland Electric & Water
3(A)	LG&E Energy Marketing
4(A)	NP Energy, Inc.
5(A)	Panda Energy International, Inc.
7	Stewart & Stevenson International
8(A)	Tarpon Power, Inc.
8(B)	Tarpon Power, Inc.
10(A)	Indeck Energy Services
10(B)	Indeck Energy Services
11	Progress Energy Corporation

Performance of Stage II Bidders
7-Year Cumulative Present Worth

Rank	Bidder Name	Percent Cost Difference at Capacity Factor		
		50 Percent	75 Percent	100 Percent
1	KUA Self-Build Option	---	---	---
2	NP Energy, Inc.	-11.64	-6.77	-3.52
3	City of Lakeland Electric & Water	13.19	8.02	4.70
4	Progress Energy Corporation	21.72	15.95	12.17
5	Constellation Power, Inc.	38.79	29.12	22.83
6	Tarpon Power, Inc. (TP1)	44.80	35.12	28.85
7	Indeck Energy Services 10(A)	43.89	35.73	30.44
8	Tarpon Power, Inc. (TP2)	49.46	38.85	31.92
9	Indeck Energy Services 10(B)	51.75	41.95	35.58
10	LG&E Energy Marketing	56.80	43.97	35.61
11	Panda Energy International, Inc.	62.73	49.36	40.65

Note: Positive percentage difference for all table values represent the amount by which alternatives are more costly than the KUA Self-Build Option.

Performance of Stage II Bidders
15-Year Cumulative Present Worth

Rank	Bidder Name	Percent Cost Difference at Capacity Factor		
		50 Percent	75 Percent	100 Percent
1	KUA Self-Build Option	---	---	---
2	Constellation Power, Inc.	39.51	29.37	22.83
3	Tarpon Power, Inc. (TP1)	41.97	32.98	23.76
4	Tarpon Power, Inc. (TP2)	46.97	32.98	29.78
5	Indeck Energy Services 10(A)	45.87	36.98	31.26
6	Indeck Energy Services 10(B)	53.94	43.31	36.45
7	LG&E Energy Marketing	59.66	45.85	36.92
8	Panda Energy International, Inc.	69.18	53.96	44.11

Note: Positive percentage difference for all table values represent the amount by which alternatives are more costly than the KUA Self-Build Option.

Performance of Stage II Bidders
20-Year Cumulative Present Worth

Rank	Bidder Name	Percent Cost Difference at Capacity Factor		
		50 Percent	75 Percent	100 Percent
1	KUA Self-Build Option	---	---	---
2	Constellation Power, Inc.	39.34	29.07	22.50
3	Tarpon Power, Inc. (TP1)	41.08	31.76	25.76
4	Tarpon Power, Inc. (TP2)	45.51	35.22	28.61
5	Indeck Energy Services 10(A)	46.87	37.61	31.66
6	Indeck Energy Services 10(B)	55.01	43.95	36.86
7	LG&E Energy Marketing	61.05	46.75	37.53
8	Panda Energy International, Inc.	71.86	55.78	45.43

Note: Positive percentage difference for all table values represent the amount by which alternatives are more costly than the KUA Self-Build Option.

Non-Price Evaluation Results

Rank	Bidder Name	Raw Score	Weighted Score	Percentage Score	Relative Score
1	KUA Self-Build Option	29.00	30.00	75.00	---
2	Progress Energy Corporation	20.00	21.00	52.50	30.00
3	Constellation Power, Inc.	17.50	18.34	45.84	38.88
4	Tarpon Power, Inc. (TP1)	13.00	14.00	35.00	53.33
5	Tarpon Power, Inc. (TP2)	13.00	14.00	35.00	53.33
6	City of Lakeland Electric & Water	13.00	13.00	32.50	56.67
7	Panda Energy International, Inc.	13.00	13.00	32.50	56.67
8	Indeck Energy Services 10(B)	12.00	12.00	30.00	60)0
9	Indeck Energy Services 10(A)	11.00	11.33	28.34	62.22
10	LG&E Energy Marketing	10.00	11.00	27.51	63.33
11	NP Energy, Inc.	7.00	7.67	19.17	74.44

Note: Percentage Score is calculated by dividing Weighted Score by the total possible points (40). The positive percentages under Relative Score indicate the degree to which the KUA Self-Build option has outperformed other proposals in the non-price evaluation.

BEFORE THE PUBLIC SERVICE COMMISSION

KISSIMMEE UTILITY AUTHORITY

FLORIDA MUNICIPAL POWER AGENCY

TESTIMONY OF ROBERT G. MILLER

DOCKET NO. 980802-EM

JULY 27, 1998

Q. Please state your name and address.

A. My name is Robert G. Miller and my business address is 1701 West Carroll Street, Kissimmee, Florida 34741.

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

A. I am employed by Kissimmee Utility Authority (KUA) as Manager of Bulk System Planning.

Q. Please describe your responsibilities in that position.

A. As Manager of Bulk System Planning, I have overall responsibility for generation and purchase power planning, transmission planning, and demand side planning. As part of my responsibilities, I develop transmission wheeling rates and associated cost support schedules, perform production costing of the utility's resources, and evaluate power purchase options. I established the system planning division of KUA during 1992. As Manager of Bulk System Planning, I am accountable to the Director of Power Supply on all matters concerning utility planning. I have held the Bulk System Planning manager position for over 6 years.

Q. Please state your professional experience and educational background.

A. I have over 20 years of experience as an electrical engineer with 16 years experience in the electric utility industry. My primary area of experience has been in electric utility planning and includes generation expansion planning, distribution system planning, transmission planning, load forecasting and economic analysis. I served nine years as Manager of System Planning for the Jamaica Public Service Company where I was actively involved in least cost generation expansion planning, load forecasting, transmission and distribution planning, and involvement with national energy policy issues. I was subsequently employed as a project manager by the national consulting firm R.W. Beck and Associates where I participated in transmission analyses and power supply studies for several Florida municipal utilities and several Caribbean countries.

I received a Master's degree in Electrical Engineering from the Technical University of Nova Scotia, Canada as well as a Bachelor of Science degree in Electrical Engineering from the University of the West Indies in the Caribbean. I have attended numerous training courses including an intensive nine week course in nuclear power planning and generation optimization at the Argonne National Laboratory as well as a similar program in energy policy planning at the Brookhaven National Laboratory.

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

A. The purpose of my testimony is to address KUA's need for power as it relates to Cane Island 3. In my discussion of KUA's need for Cane Island 3. I will summarize the reliability criteria used by KUA, summarize the load forecasts developed under my direct supervision, and demonstrate the need for power based upon the reserve criteria and load forecasts. I will discuss KUA's conservation and demand-side management

programs and describe KUA's purchase power contracts. I will describe the evaluations conducted to determine that Cane Island Unit 3 is KUA's least cost alternative and discuss the consequences of delay if Cane Island Unit 3 is not installed by June 1, 2001. I will describe the proposed contribution of Cane Island 3 on reliability and integrity of KUA's and Peninsular Florida's system, and show the fuel diversity associated with the proposed unit addition. I will show that KUA has provided assurances regarding primary and secondary fuel availability at a reasonable cost. I will demonstrate that KUA adequately explored and evaluated the availability of purchase power options. Finally, I will present strategic considerations regarding the installation of Cane Island Unit 3.

Q. Have you prepared any exhibits as part of your direct testimony?

A. Yes. I have prepared three Exhibits, Exhibit ___RGM-1 through Exhibit ___RGM-3, which are attached and included as part of my testimony.

Q. Were there Subsections of the Cane Island 3 Need for Power Application prepared by you or under your direct supervision?

A. Yes. Subsections 1A.7.0, 1B.5.1, 1B.5.2, 1B.5.3, 1B.5.5, 1B.5.6, 1B.6.0, 1B.7.0, 1B.8.5, 1B.9.0, 1B.10.0, 1B.11.0, 1B.12.0 and 1B.13.0 contained in Exhibit ___KUA-1 were prepared under my direct supervision.

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

A Yes, I am.

Q. Are there any corrections to these Subsections?

B. Yes, corrections have been identified and included as Exhibit ___RGM-1. The corrections identified are minor and have no significant impact on the content or conclusions contained in Need for Power Application.

Q. Is the reliability criterion used by KUA to determine their need for Cane Island Unit 3 capacity in 2001 reasonably adequate for planning purposes?

A. Yes, KUA has established proper planning criterion to maintain a reliable system for its customers and for Peninsular Florida. KUA has adopted the reserve margin criterion as an effective and appropriate method to provide a reliable system. The reserve margin KUA uses for planning purposes is 15 percent. The 15 percent reserve criterion is consistent with industry practice for the many reliability councils and power pools throughout the United States and was established in accordance with the Florida Public Service Commission Rule 25-6.035, Fla. Admin. Code. KUA will occasionally tolerate minor excursions below 15 percent if such an excursion would result in significant cost savings. The reserve margin basically states that a utility will maintain capacity for its system such that an excess of capacity is available above and beyond the anticipated system peak demand. The reserve margin provides insurances that there will be enough power to supply customers in the event that certain resources are not available, load growth exceeds forecasts, or extreme weather conditions occur

While some reliability councils and utilities are utilizing statistical criteria such as loss of load probability (LOLP) or expected unserved energy (EUE) as additional planning criteria, KUA does not. The use of these statistical reliability criteria are very appropriate for large integrated systems that have relatively few interconnections

outside of the system being modeled such as is the case with Peninsular Florida. For these large integrated systems, typical criteria such as one day in ten years are appropriate. The modeling for these systems is governed by the generating units and not the interconnections. For smaller systems with many interconnections, the modeling of the assistance through the interconnection governs the reliability of the system. Systems, such as KUA's, have a good understanding of the reliability and performance of their own system. As competition increases, less and less information is available about their neighboring and competing systems. Thus it is very difficult to model the system serving the interconnections. These interconnections drive the system reliability for relatively small systems such as KUA's with several significant interconnections. Using statistical methods for KUA's system would be very difficult and likely lead to erroneous results.

Q. Was the KUA forecast of power demand and energy prepared by you or under your direct supervision?

A. Yes, it was. KUA's load forecast was prepared as two separate components. The first component is a model-based forecast of customer class energy and demand requirements. The second component is an incremental load forecast associated with the proposed World Exposition Center (Expo Center), a major commercial development on an 800-acre site in the northwest corner of KUA's service area. I will be providing testimony regarding details of the customer class based forecasts and Mr Scott Carpenter of Black & Veatch ,,, will sponsor testimony detailing the Expo Center forecast.

Q. Please summarize the load forecast that was used in determining the need for the Cane Island Unit 3.

A. KUA prepared a 20-year load forecast to assess the need for and relative economics of the Cane Island Unit 3. Over the long-term growth in summer peak load, winter peak load and net energy for load, including the Expo Center is projected to be 4 2 percent, 4.2 percent and 3.9 percent respectively. These compare to historical annual growth rates over the last ten years of 6.0, 4.0, and 6.5 percent respectively for summer peak demand, winter peak demand, and net energy for load

In the year 2001, when Cane Island Unit 3 becomes operational, KUA's summer peak and net energy for load are expected to be 283 MW and 1,184 GWh. The base case forecast that was utilized in the planning process is shown in Exhibit ___(RGM-2) A detailed compilation of KUA's load forecast is provided in Subsection 1B.5.0 of Exhibit ___ KUA-1.

Q. Please discuss the forecasting process utilized by KUA to project customer class energy requirements and system peak load.

A. KUA uses a statistical based modeling process known as regression analysis to prepare forecasts of customer class energy requirements. Regression techniques evaluates a relationship between the quantity required and several other causative and independent quantities that are themselves easier to project than the required quantity. In preparing forecasts KUA analyzes and projects the major driving factors that are related to the demand for electricity by its customers. These factors include demographic factors (population and customer growth), weather impacts on loads, economic factors (employment and income), conservation programs and large incremental load changes

which may impact the forecast. KUA projects the class energy requirements using recognized modeling techniques and then estimates winter and summer peak demands using load factor analysis.

Q. Describe the forecast modeling techniques used by KUA.

A. To estimate class energy requirements KUA uses the statistical modeling technique knows as least squares regression. This method is used to identify and estimate the historical relationship between energy consumption and multiple independent demographic, economic and weather variables. In analyzing the relationship between energy requirements and driving variables, KUA utilizes a commercially available software package to perform statistical analysis and prepare standardized tests of statistical significance to evaluate alternative forecast models. Once a model is selected, energy forecasts are prepared using the selected model and forecast assumptions for driving variables (customers, weather, economics, etc.). Forecasted energy is then analyzed for reasonableness, compared to historical patterns and modified, if appropriate by using informed judgement and appropriate incremental load adjustments. The forecast is adopted after review by KUA load forecasting committee consisting of upper management personnel at KUA.

Q. Please describe the statistical validation tests that are used to ensure that the forecasting models used by KUA are reliable.

A. As part of the forecasting process, KUA evaluates standardized statistical measurements to assess the:

a). Overall significance of the forecast model.

b). The statistical significance of individual driving variables.

c). The relative explanatory performance of the model.

d). The validation of model structure for complexity and dynamics.

The utilization of these types of tests permits the development of forecast models, which are statistically valid and appropriate for use in forecasting.

It is important to note that no matter how sophisticated and reliable a model appears to be based upon historical relationships and statistical validation appears to be, a model is a simplification of reality and can not capture every nuance of cause and effect relations. In other words, differences between load forecasts and actual realized loads will always occur. In addition, we live in a dynamic world where change is a constant. The occurrence of forecasting error is unavoidable in any statistical model and should be addressed through the use of sensitivity or uncertainty analysis.

Q. Are the forecasting processes used by KUA similar to those used by electricity providers of similar size and situations as KUA.

A. Yes they are. There is a tradeoff between forecast methodology complexity and cost considerations. Simplistic methodologies such as linear trend forecasting are very expedient and inexpensive. However this type of forecast methodology does not provide sufficient insight into the causative effects associated with the demand for electricity In addition, trend models provide no logical capabilities for evaluating the potential dynamics of growth in electrical requirements.

Statistical modeling techniques, such as used by KUA and other small to mid-sized

utility systems, are more costly to implement, but allow the analyst greater insight into the factors that really drive the demand for electricity. The forecasting processes used by KUA strikes an appropriate balance between cost and the level of sophistication required to reliably plan for future power supply requirements. The tools used by KUA allow great flexibility in assessing the impact of numerous driving factors on electricity growth and provide the ability to assess alternative growth scenarios.

Q. Does the load forecast process utilized by KUA consider the major factors that will determine the need for power by the year 2001.

A. Yes it does. KUA forecasts have considered the major demographic and economic factors, which influence the demand for electricity. We have specifically considered population and customer growth, the impact of weather, the price of electricity, employment levels, household income levels, new housing starts and appliance saturations in our forecast process.

Q. Are there additional developments planned for KUA's service area resulting in a further need for Cane Island Unit 3?

A. Yes. One such project is the proposed World Exposition Center (Expo Center), a major commercial development to be located on an 800-acre site in the northwest corner of KUA's service area. The construction of this world-class mixed-use facility is in the planning stages with initial operation expected in 2000. The $1.1 billion development will contain numerous facilities including a 2.4 million sq. ft. exposition hall, a 1.3 million sq. ft. convention center, and 2.6 million sq. ft. of hotels. Total employment projections for the project and supporting industries is nearly 30,000 jobs with an estimated payroll of $700 million. Mr. Scott Carpenter will testify to the

development of the project direct loads from the project.

Developments in Central Florida such as the Expo Center continue to cause growth in KUA's service area. The Expo Center will likely have a greater direct impact on KUA's power requirements than Walt Disney World, further providing a need for the timely installation of Cane Island Unit 3.

Q. What are the major assumptions that are used in preparing the KUA's forecast?

A. Economic growth in the state of Florida generally exceeds that of the U.S. as a whole and KUA's service area is one of the fastest growing counties within the state. Economic and demographic projections for the KUA area provided by the Bureau of Economic and Business Research (BEBR) substantiate the continuing development of the KUA area. Population growth projections, and ultimately new home construction, though somewhat lower than that actually experienced during the past 15 years, continue to drive the relatively high growth in electricity demand projected for the KUA service area. Over the next 15 years employment is projected to increase by 2.2 percent per year and real personal income is projected to increase by 2.9 percent per year. The load forecast is based upon an assumption of normal weather conditions. An additional growth factor to the load forecast is the assumption of an estimated annual rate decrease of 2.5 percent for all rate classes during the 6 year period FY 1998 to 2003. Specific forecast driving variables reflecting the assumptions described above are contained in Appendix 1B.16.2 in Exhibit ___KUA-1.

Q. Are the forecast assumptions used by KUA reasonable?

A. Yes they are. The projections for economic and demographic growth assumptions

made for the KUA area are a realistic scenario of how the future may unfold. The projections have been provided by a credible and unbiased source, the Bureau of Economic and Business Research, and were prepared using logical processes and generally accepted methods.

Q. Please describe how KUA addresses forecast uncertainty in evaluating the need for Cane Island Unit 3.

A. As mentioned earlier, forecasting error cannot be avoided and needs to be considered in developing power resource plans. The primary method for dealing with load forecast uncertainty is to prepare alternative forecasts by assuming different scenarios of events that will impact the forecast. This is precisely the procedure used by KUA. KUA used high and low growth projections developed by BEBR to construct alternative forecast scenarios broad enough to quantify a significant amount of load forecast uncertainty. The process used to address uncertainty is reasonable and supported by statistical theory that indicates that forecast uncertainty will increase as the length of the forecast period increases. As an example, in 1999 the uncertainty range for the KUA summer peak load, including the Expo Center, is 46 MW. This uncertainty range increases to 304 MW by 2010. In terms of the need for capacity, KUA's reserve margin will fall to below 15 percent in 2001 even under the low load growth scenario and the exclusion of the Expo Center load without Cane Island Unit 3.

Q. Is KUA evaluating any conservation or demand-side management programs?

A. Yes. In response to Public Service Commission Docket 930555-EG, KUA evaluated nearly 70 proposed demand-side management measures. As a part of that evaluation, KUA implemented a direct load control program for residential customers to control

air conditioners, electric water heaters, and electric space heaters. The program had more than 7,000 participants by the end of 1997 and has resulted in a demand reduction of approximately 12 MW.

As part of the evaluation of the need for Cane Island Unit 3, KUA reevaluated the cost effectiveness of conservation and demand-side management measures relative to any potential savings from avoiding Cane Island Unit 3 as testified to by Mr. Bruce Knodel. The lower avoided costs of Cane Island Unit 3 resulted in none of the nearly 70 measures being cost effective. Nevertheless, KUA currently plans to continue the residential direct load control program on a voluntary basis providing reduced credits for participation. KUA continues to offer free energy audits with about 600 audits being performed annually and promotes conservation and demand-side management through numerous public education programs.

Q. **Please briefly describe the evaluation process by which KUA determined that the proposed Cane Island Unit 3 is the best method of meeting KUA's future need for reliable power.**

A. During the last two years, KUA has conducted an exhaustive analysis of alternative methods of meeting KUA's future capacity and energy requirements in a reliable, least-cost, environmentally responsible fashion. KUA's analysis, considered a multitude of factors including:

a). Alternative generation technologies and sizes.

b). Alternative fuel source and types.

c). Compliance with environmental regulations.

d). Purchase power alternatives.

e). Conservation and demand-side management alternatives.

f). Reliability considerations.

g). Uncertainty and sensitivity analysis.

h). Fuel diversity needs.

As part of this process, KUA conducted an extensive request for proposals (RFP) for purchased power and evaluation of the proposals received. The results of the evaluations indicated that Cane Island Unit 3 with a June 1, 2001 commercial operation date was the least-cost long-range alternative that could meet KUA's reliability requirements. Cane Island Unit 3 will utilize the most efficient and reliable combustion turbine technology currently in commercial operation. The high efficiency of Cane Island Unit 3 ensures that the project will remain a competitive resource if and when deregulation occurs in Florida.

Q. Please describe the modeling that was conducted to determine that Cane Island Unit 3 was the least cost alternative for meeting KUA's capacity requirements for the summer of 2001.

A. KUA evaluated two coal fired, four combined cycle units, and four simple cycle combustion turbine units of various sizes and technologies using the EGEAS optimized generation expansion program. EGEAS evaluates all combination of generating units provided to develop the least cost expansion plan necessary to meet system requirements including reserves over the 20 year planning period based on cumulative present worth cost.

Q. Did EGEAS pick Cane Island Unit 3 as the least cost alternative.

A. Yes. Exhibit ___ RGM-3 shows the installation of 50 percent ownership of the 501F

1x1 combined cycle Cane Island Unit 3 in 2001 as the first unit addition in the least cost expansion plan.

Q. Does KUA have purchase power alternatives that are lower in cost than Cane Island 3.

A. No. KUA evaluated seven purchase power bids over a 20 year period resulting from an extensive RFP process as testified by Mr. Ben Sharma and all of these purchase power bids were significantly more expensive than Cane Island Unit 3. In addition, KUA has a stratified partial requirements contract with Florida Power Corporation in which KUA can purchase base, intermediate, and peaking capacity. KUA compared the cost of Cane Island Unit 3 to the stratified base, intermediate, and peaking capacity and Cane Island Unit 3 was lower in cost at all capacity factors.

Q. Will there be adverse consequences to KUA if Cane Island Unit 3 is not installed to meet KUA's need for capacity in the summer of 2001.

A. Yes. Without Cane Island Unit 3, KUA is not projected to have adequate capacity to meet peak demands in the summer of 2001. In addition, the low cost energy produced by Cane Island Unit 3 would need to be replaced with higher cost purchase power and generation resulting in higher costs to KUA customers.

Q. Does KUA have a reliability need for the proposed Cane Island 3 unit in 2001?

A. Yes, KUA desperately needs the capacity from Cane Island 3 in 2001 to maintain system reliability. As demonstrated in Table 1B.7-1 of Exhibit ___KUA-1, a significant capacity deficit is projected to occur in the year 2001 without Cane Island Unit 3.

The need for power is even demonstrated under the low load growth scenario in 2001 when the projected reserve margin drops to 2.4 percent without the addition of Cane Island Unit 3. This demonstrates the critical necessity of capacity required from the proposed Cane Island 3 unit. Table 1B.11-1 of Exhibit ___KUA-1 presents the need for power in 2001 based upon the low load and energy growth scenario.

Q. Is the timing of KUA's need for its proposed combined cycle unit appropriate?

A. Yes, based upon the base case forecast of peak demands, the numerous sensitivities conducted, and the schedule required for construction, the timing is appropriate for the installation of Cane Island Unit 3. I have previously stated in my testimony the essential need for the proposed combined cycle unit in 2001 to maintain reserve margins at an adequate level.

Based upon the lead times to obtain certification under the Florida Electrical Power Plant Siting Act and to order major equipment including the combustion turbine, and the schedule to construct the facility, now is the most appropriate time to pursue the need for Cane Island Unit 3. Delays in the ordering of the combustion turbine or licensing could have potentially large effects as to whether the facility will be installed in time to meet peak demands for the summer of 2001. As the schedule shown in Figure 1A.2-2 of Exhibit ___KUA-1 displays, the timing for the need application is critical to the facility being available in June of 2001.

Q. Will the proposed combined cycle unit contribute to the electrical system reliability and integrity of KUA and Peninsular Florida?

A. Yes, KUA must acquire additional capacity in 2001 or it will not be able to maintain

system reserve margins. Without the addition of Cane Island 3 in 2001, KUA would be required to purchase power from a market where there may not be power available.

The proposed combined cycle for Cane Island 3 will also contribute to the electrical system reliability and integrity for Peninsular Florida. With reserve margins projected by the Florida Reliability Coordinating Council's 1997 Ten-Year Plan for Peninsular Florida at 15 percent in the summer of 2001 after exercising all of the load management and interruptible load, the need for Cane Island Unit 3 is very well demonstrated. The construction of Cane Island Unit 3 will lead to a more reliable Peninsular Florida system due to Cane Island's interconnections to the grid.

The proposed combined cycle for Cane Island 3 is a very reliable, proven source of generation that will contribute to system reliability and integrity, while reducing production costs for generation.

Q. Will the proposed combined cycle unit contribute to the fuel diversity for KUA and Peninsular Florida?

A. Yes. The addition of Cane Island Unit 3 would increase KUA's natural gas generation and replace more costly generation resources in the region, which depend on foreign oil supplies, with generation fueled by a domestically produced source of fuel. With natural gas prices expected to remain low and ample supplies available, it is apparent that natural gas is the optimal fuel choice. In addition, the base load natural gas fueled generation of Cane Island Unit 3 provides protection from the impact of possible future regulations, which would reduce CO_2 emissions on coal fueled units.

Q. Has KUA provided adequate assurances regarding available primary and secondary fuel to serve the proposed facility on a long-term and short-term basis at a reasonable cost.

A. Yes, KUA has requested from FGT, via the open season, additional transportation capacity to support the expanded Cane Island facility. In addition, KUA is a member of Florida Gas Utilities (FGU), which is an organization that manages transportation entitlements for each of its members.

The Cane Island facility will also be capable of burning No 2 oil as backup fuel in the event that natural gas would be unavailable. This provides flexibility and assurances that Cane Island Unit 3 would be a reliable source of generation. Cane Island 3 will be able to burn No. 2 oil to provide generation to KUA customers with storage equivalent to 3 days of full load operation planned.

Q. Has KUA adequately explored and evaluated the availability of purchase power from qualifying facilities and non-utility generators?

A Yes The RFP process identified and described in testimony by Mr. Ben Sharma, did not exclude qualifying facilities or non-utility generators from the RFP process.

Q. Are there additional strategic considerations for the installation of Cane Island Unit 3.

A. Yes. KUA must plan to provide economical and reliable electric power for its customers in today's regulatory climate as well as protect its customers from potential stranded costs in a deregulated market Cane Island Unit 3 is the most efficient commercially available generating capacity and, as such, it will be very competitive in

a deregulated market. This protects KUA's customers from potential stranded costs while providing them with low cost and reliable power.

Q. Does this complete your prefiled testimony?

A. Yes, it does.

The following are corrections to The Cane Island Power Park Unit 3 Need for Power Application:

1. Change the retirement date for Hansel 8 in Table 1B.2-1 from "-/98" to "01/03".

2. Change the retirement dates from Hansel 14, 15, 16, 17, and 18 in Table 1B.2-1 from "01/02" to "01/03".

3. Change the Generation for 2002 in Table 1B.11-3 from "153" to "172"

4. Change the Total Resources for 2002 in Table 1B.11-3 from "221" to "240".

5. Change the Resource Margin Without Center for 2002 in Table 1B.11-3 from "(27.1)" to "(20.8)".

6. Change the Reserve Margin With Center for 2002 in Table 1B.11-3 from "(38.3)" to "(33.0)".

KUA LOAD FORECAST

Including Exposition Center Loads

Year	Summer Peak Demand (MW)	Winter Peak Demand (MW)	Net Energy For Load (GWH)
1998	224	215	992
1999	236	227	1,045
2000	260	250	1,117
2001	283	273	1,184
2002	303	293	1,248
2003	318	307	1,328
2004	335	324	1,379
2005	346	334	1,427
2006	357	345	1,476
2007	368	356	1,525
2008	380	367	1,623
2009	392	378	1,628
2010	404	390	1,681
2011	416	401	1,733
2012	428	413	1,786
2013	440	425	1,841
2014	453	437	1,898
2015	466	450	1,956
2016	479	462	2,012
2017	492	475	2,070
Growth Rate 1998-2017	4.2%	4.2%	3.9%

Note: Does not include reduction due to direct load control program.

Base Case Expansion Plan			
Year	Expansion plan	Annual Costs ($1,000)	Cumulative Present Worth ($1,000)
1998		37,749	37,749
1999		39,592	75,277
2000		41,565	112,621
2001	Build 501F 1x1 Combined Cycle (118 MW)*	44,876	150,838
2002		47,819	189,438
2003		50,480	228,062
2004	Build LM6000 Simple Cycle (17 MW)**	54,321	267,458
2005	Build 501G Combined Cycle (111)***	59,446	308,323
2006		62,019	348,735
2007		64,872	388,802
2008		68,078	428,657
2009		71,234	486,168
2010		75,102	507,688
2011		79,089	547,119
2012	Build 501G Combined Cycle (111 MW)***	84,538	587,069
2013		88,586	626,749
2014		93,198	666,319
2015		97,883	705,712
2016		102,851	744,946
2017		108,379	784,133

* Indicates KUA's share of 50 percent ownership with FMPA.
** Assumes 50 percent KUA ownership share.
*** Assumes 37.5 percent KUA ownership share.

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

KISSIMMEE UTILITY AUTHORITY

FLORIDA MUNICIPAL POWER AGENCY

TESTIMONY OF ROBERT C. WILLIAMS

DOCKET NO. 980802-EM

JULY 27, 1998

Q. Please state your name and business address.

A. My name is Robert C. Williams. My business mailing address is 7201 Lake Ellenor Drive, Orlando, Florida 32809.

Q. Who is your employer and what position do you hold?

A. I am employed by Florida Municipal Power Agency (FMPA) as Director of Engineering, a position I have held since 1985

Q. Please describe your responsibilities in that position.

A. As the Director of Engineering for FMPA I am responsible for conducting and supervising system planning needs as well as reporting to the Board. Under my direct supervision the necessary system planning functions are performed including: load forecasts, system reliability criteria, transmission planning, power purchase negotiations, and budgeting for system operation.

Q. Please summarize your background and experience.

A. I received a Bachelors of Science degree in electrical engineering from Louisiana State University and am a licensed professional engineer in Florida and Louisiana. I have

over 29 years of experience in the planning, design, and operation of electric utility systems.

I have been employed by FMPA since 1985 as Director of Engineering. Since joining FMPA, I have been active in utility groups that are responsible for coordination and reliability among Florida's utilities. These organizations included the Florida Electric Power Coordinating Group(FCG) and the Energy Broker Network operated by FCG. In addition, I have participated in forming the Florida Reliability Coordinating Council (FRCC), one of the 10 North American Electric Reliability Councils. I have previously presented testimony before the Florida Public Service Commission (FPSC).

Prior to joining FMPA in 1985, I was employed for 14 years by Barbay Engineers, Inc. of Baton Rouge, Louisiana, in various engineering positions with increasing responsibility. I have also spent two years with Bovay Engineers in Baton Rouge as principal electrical engineer.

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to address FMPA's need for power as it relates to Cane Island Unit 3. In my discussion of FMPA's need for Cane Island Unit 3, I will summarize, on a state-wide basis, the reliability need for Cane Island Unit 3 and the adverse consequences if Cane Island Unit 3 is not installed for commercial operation by June 1, 2001. I will also summarize the request for proposal process that was conducted to evaluate the alternatives to the construction of Cane Island Unit 3 and discuss the evaluation process which determined Cane Island Unit 3 was the lowest cost reliable alternative.

Q. Are there any adverse consequences to Peninsular Florida and to FMPA if the proposed combined cycle unit is not completed in the time frame requested by FMPA?

A. Yes, KUA, FMPA, and Peninsular Florida will fall below their specified minimum reserve margins in the year 2001 if the Petitioners request is not granted. This could lead to potential outages and system failures across the grid, causing major problems for power suppliers in Peninsular Florida. The customers will suffer adverse consequences with the possibility of inadequate power supply and potentially very high cost electricity. With the low reserve margins projected for the state in 2001, the potential for insufficient power supplies may exist. If FMPA assumed it could obtain additional partial requirements capacity for 2001 and build the combined cycle in January 2002, the minimal impact to cumulative present worth would be $1.8 million dollars.

Q. Has FMPA adequately explored and evaluated the availability of purchased power from other electric utilities?

A. Yes, FMPA issued on May 28, 1997, a Request for Proposals (RFP), for the supply of capacity and energy. The RFP was issued concurrent with a similar RFP by Kissimmee Utility Authority (KUA). The RFP resulted in 33 proposals. After extensive evaluation of the proposals, none of the proposals were deemed able to reliably meet FMPA's power requirements for less than the costs from Cane Island Unit 3. Furthermore, FMPA is negotiating with all the bidders that were deemed able to reliably supply FMPA's capacity needs for capacity required in addition to Cane Island Unit 3

Q. Has FMPA adequately explored and evaluated the availability of purchase power from qualifying facilities and non-utility generators?

A. Yes. The RFP process did not exclude qualifying facilities or non-utility generators.

Q. Will the proposed combined cycle unit contribute to the provision of adequate electricity to FMPA and Peninsular Florida at a reasonable cost?

A Yes. The F class combined cycle technology is highly reliable and is the most efficient of any technology in commercial operation

Q. Has FMPA demonstrated that its proposed combined cycle unit is the most cost-effective alternative available?

A. Yes, FMPA has conducted a thorough analysis consisting of three major areas. The first was demand-side management in which no alternatives were identified that were cost effective. The second was an extensive test of the competitive purchase power market through the RFP process The third was a detailed evaluation of generating unit alternatives using the EGEAS optimal generation expansion program. In all three cases, Cane Island Unit 3 was the least cost alternative.

Q. Does this complete your prefiled testimony?

A. Yes, it does.

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

KISSIMMEE UTILITY AUTHORITY

FLORIDA MUNICIPAL POWER AGENCY

TESTIMONY OF RICHARD L. CASEY

DOCKET NO. 980802-EM

July 27, 1998

Q. Please state your name and business address.

A. My name is Richard L. Casey. My business mailing address is 7201 Lake Ellenor Drive, Orlando, Florida 32809.

Q. Who is your employer and what position do you hold?

A. I am employed by Florida Municipal Power Agency (FMPA) as System Planning Manager.

Q. Please describe your responsibilities in that position.

A. As the System Planning Manager for FMPA, I am responsible for conducting and supervising system planning needs. As System Planning Manager, I have responsibility for managing the Agency's planning functions for its expanding 1,000 MW All-Requirements project including production of annual load forecast, annual reporting to regulatory bodies, transmission planning, demand-side planning, and generation planning. I manage the development, issuance, and evaluation of requests for proposals involving both short-term and long-term purchases and generation construction options. I am also responsible for negotiation of contracts with successful bidders. I am directly responsible for development, modeling, and

production of annual O&M budgets for four of the five FMPA Projects totaling $100 million.

Q. Please summarize your background and experience.

A. I received a Bachelors of Science degree in electrical engineering from Lamar University, in Beaumont, Texas. I am a member of Institute for Electronic & Electrical Engineers (IEEE).

I have been employed by FMPA since 1993 as System Planning Manager with responsibility for managing FMPA's planning functions for its expanding 1,000 MW All-Requirements project including production of annual load forecast, annual reporting to regulatory bodies, transmission planning, demand-side planning, and generation planning. I have managed the development, issuance, and evaluation of requests for proposals involving both short-term and long-term purchases and generation construction options followed by negotiation of contracts with successful bidders. I am directly responsible for development, modeling, and production of annual O&M budgets for four of the five FMPA Projects totaling $100 million. I have served two consecutive years as Vice-Chair and then Chairman on Florida Electric Utility Coordinating Group's, System Planning Committee.

My past experiences include serving as a Transmission Services Consultant for Texas Utilities Electric Co. which required the analysis, development, negotiation, and administration of various contractual arrangements including transmission wheeling service and interconnection agreements, joint transmission line ownership agreements, and microwave interconnection agreements.

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to address FMPA's need for power as it relates to Cane Island 3. In my discussion of FMPA's need for Cane Island 3, I will describe FMPA's existing generation system including purchased power and transmission arrangements. I will summarize the reliability criteria used by FMPA, summarize the load forecasts developed under my direct supervision, and demonstrate the need for power based upon the reserve criteria and load forecasts. I will describe the proposed contribution of Cane Island 3 to reliability and integrity of FMPA's and Peninsular Florida's system, and show the fuel diversity associated with the proposed unit addition. I will show that FMPA has provided assurances regarding primary and secondary fuel availability at a reasonable cost. Finally, I will demonstrate FMPA adequately explored and evaluated the availability of purchased power options using the request for proposals process.

Q. Have you prepared any exhibits as part of your direct testimony?

A. Yes. I have prepared 4 Exhibits, Exhibit ___RLC-1 through Exhibit ___RLC-4, which are attached and included as part of my testimony.

Q. Were there Subsections of the Cane Island 3 Need for Power Application prepared by you or under your direct supervision?

A. Yes. Subsections 1C.2.0, 1C.5.0, 1C.6.0, 1C.7.0, 1C.12.0, and Appendix 1C.16.1 contained in Exhibit ___ KUA-1 were prepared under my direct supervision.

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

A. Yes, I am.

Q. Are there any corrections to these Subsections?

A. Yes, corrections have been identified and included as Exhibit ___RLC-1. The corrections identified are minor and have no significant impact on the Need for Power Application.

Q. Please summarize FMPA's existing generation system including purchased power and transmission arrangements.

A. FMPA is a project-oriented, joint action agency where each project stands on its own FMPA currently has five power supply projects in operation: (i) the St Lucie Project, (ii) the Stanton Project, (iii) the Tri-City Project, (iv) the Stanton II Project, and (v) the All-Requirements Project. The need for Cane Island 3 is based upon the All-Requirements Project participants load growth and need for power

The All-Requirements Project was formed on May 1, 1986, initially with five members and other members have joined over time. The All-Requirements Project participants now consist of the City of Bushnell, City of Clewiston, Fort Pierce Utilities Authority, City of Green Cove Springs, City of Jacksonville Beach, City of Key West, City of Leesburg, Ocala Electric Utility, City of Starke, City of Vero Beach, with Lake Worth Utilities planned to join in 1999. Under the All-Requirements Project, the Agency currently serves all the power requirements (above certain excluded resources) for the 10 members. Table 1C.2-4 of Exhibit ___ KUA-1 displays the existing All-Requirements generating capacity with a total net summer capability of 377 MW. In addition to the existing All Requirements Project generating facilities, the All-Requirements Project Purchases firm power from All-

Requirements members with existing on-system generation. This capacity is shown in Table 1C.2-5 of Exhibit ___ KUA-1 and totals 410 MW based on net summer capability.

FMPA also purchases firm power from the following utilities:

- Lake Worth
- Gainesville Regional Utilities (GRU)
- Orlando Utilities Commission (OUC)
- Tampa Electric Company (TECO)

The firm capacity purchased varies through time and is shown in Table 1C.2-6 of Exhibit ___ KUA-1. FMPA also purchases Partial Requirements power from Florida Power Corporation (FPC) and Florida Power & Light (FPL). The firm capacity purchased also varies through time and is also shown in Table 1C.2-6 of Exhibit ___ KUA-1.

FMPA is also negotiating to purchase additional power from OUC, Lee County, The City of Lakeland, and TECO. The projected firm purchase capacity levels are also shown in Table 1C.2-6 of Exhibit ___ KUA-1. The projected purchases from OUC, Lee County, and The City of Lakeland were the result of bids obtained in FMPA's request for proposals (RFP) process. The projected TECO purchase is being negotiated outside of the bids received from the RFP process. Exhibit ___RLC-2 displays the All-Requirements Project capacity percentage by fuel type.

The capacity and energy for the All-Requirements Project is transmitted to the members primarily utilizing the transmission systems of Florida Power & Light (FPL),

Florida Power Corporation (FPC), and Orlando Utilities Commission (OUC). FMPA divides the All-Requirements Project members into two categories: members located in the FPL service area (east cities) and members located in the FPC service area (west cities). Network transmission service for the east cities is provided under an existing agreement with FPL. FMPA began purchasing network transmission service from FPL effective April 1, 1996. Network transmission for the west cities is provided under an agreement with FPC. The capacity from Cane Island 3 will be delivered to west cities through FPC.

Q. Is the reliability criterion used by FMPA to determine their need for Cane Island 3 capacity in 2001 reasonably adequate for planning purposes?

A. Yes, FMPA has established proper planning criterion to maintain a reliable system for the All-Requirements Project and for Peninsular Florida. FMPA has adopted a reserve margin criterion which is effective and appropriate for providing a reliable system. For planning purposes, FMPA uses a target reserve margin of 18 percent with a 15 percent margin as the minimum. The reserve margin basically states that a utility will maintain capacity for its system such that an excess of capacity is available above and beyond the anticipated system peak demand. The reserve margin provides assurances that there should be sufficient power to supply customers in the event that certain resources are not available, load growth exceeds forecasts, or extreme weather conditions occur.

The 15 to 18 percent reserve criterion is consistent with industry practice for the many reliability councils and power pools throughout the United States. The 15 to 18 percent criterion is slightly more conservative than Kissimmee Utility Authority's

reserve criteria, but it reflects FMPA's belief in providing a very reliable system.

Even if FMPA were to adopt the lower 15 percent reserve margin criterion set by the Florida Public Service Commission in 25-6.035 (1), Florida Administrative Code, FMPA would still require approximately 82 MW in 2001 to meet the 15 percent criterion.

While some reliability councils and utilities are utilizing statistical criteria such as loss of load probability (LOLP) or expected unserved energy (EUE) as additional planning criteria, it is FMPA's position that these criteria are not appropriate for a transmission dependent system such as All-Requirements Project. The LOLP is the expected number of days per year when the utility is projected to have insufficient capacity on-line including tie-line assistance to meet its peak daily load. With systems that are very heavily interconnected, like the All-Requirements Project, the development of accurate tie-line assistance values is very difficult and overwhelms the reliability contribution of the system's generating capacity. For these reasons FMPA does not use LOLP as a reliability criterion.

Q. Was the FMPA All-Requirements Project load forecast prepared by you or under your direct supervision?

A. Yes, it was.

Q. Please summarize the load forecast that was used in determining the need for the Cane Island Unit 3.

A. FMPA prepared a 20-year load forecast to assess the need for and relative economics

of the Cane Island Unit 3. Over the long-term, growth in summer peak load, winter peak load and net energy requirements is projected to be 1.9 percent, 2.4 percent and 2.1 percent respectively.

In the year 2001, when Cane Island Unit 3 becomes operational, the FMPA All-Requirements Project summer peak demand and annual net energy for load are expected to be 1,034 MW and 5,194 GWH. The base case forecast that was utilized in the planning process is shown in Exhibit____RLC-3. A detailed compilation of FMPA's load forecast is provided in the Subsection 1C.5.0 and Appendix 1C.16.1 of Exhibit ___ KUA-1.

Q. **Please discuss the forecasting process utilized by FMPA.**

A. FMPA is responsible for preparing load and energy projections for each of the All-Requirements Project members. The forecast process includes existing All-Requirements Project member cities and identified future cities that will become Project members. Forecasts are prepared on an individual member basis and then aggregated into projections of FMPA energy and demand requirements.

In preparing forecasts FMPA analyzes and projects the major driving factors that are related to the demand for electricity by its members. These factors include demographic factors (population and customer growth), weather impacts on loads, economic conditions, conservation programs and large incremental changes which may impact the forecast. FMPA projects energy required for load using recognized modeling techniques and then estimates winter and summer peak demands using load factor analysis.

Q. Describe the forecast modeling techniques used by FMPA.

A. To estimate All-Requirements Project member energy requirements, several relatively standardized techniques are utilized including:

- Econometric modeling of member customer class requirements
- Aggregate econometric modeling of system requirements
- Statistical Time Series Analysis Techniques (Box Jenkins, ARIMA, Regression)
- Incremental load analysis
- Informed Judgement

In analyzing the relationship between energy requirements and driving variables, FMPA utilizes a commercially available software package to perform statistical analysis and prepare standardized tests of statistical significance to evaluate alternative forecast models. Once a model is selected, energy forecasts are prepared using the selected model and forecast assumptions for driving variables used by the model, (customers, weather, economics, etc.). Forecasted energy is then analyzed for reasonableness, compared to historical patterns and modified as appropriate using informed judgement and appropriate incremental load additions or reductions.

Q. Please describe the statistical validation tests that are used to ensure that the forecasting models used by FMPA are reliable.

A As part of the forecasting process, FMPA evaluates standardized statistical measurements to assess:

- the overall significance of the forecast model,
- the statistical significance of individual driving variables,
- the relative explanatory performance of the model,

- the validation of model structure for complexity and dynamics.
- the utilization of these types of tests to permit the development of forecast models, which are statistically valid and appropriate for use in use in forecasting.

It is important to note that no matter how sophisticated and reliable a model appears to be based upon historical relationships and statistical validation, a model is a simplification of reality and can not capture every nuance of cause and effect relations. In other words, differences between load forecasts and actual realized loads will always occur. In addition, we live in a dynamic world where change is a constant. The occurrence of forecasting error is unavoidable in any statistical model and should be addressed through the use of sensitivity or uncertainty analysis.

Q. Are the forecasting processes used by FMPA similar to those used by electricity providers of similar size and situations as FMPA?

A. Yes they are. There is a tradeoff between forecast methodology complexity and cost considerations. Simplistic methodologies such as linear trend forecasting are very expedient and cheap. However this type of forecast methodology does not provide insight into the causative effects associated with the demand for electricity. In addition, trend models provide no logical capabilities for evaluating the potential dynamics of growth in electrical requirements

Statistical modeling techniques, such as used by FMPA and other small to mid-sized utility systems, are more costly to implement but allow the analyst greater insight into the factors that really drive the demand for electricity. The type of forecasting processes used by FMPA strikes an appropriate balance between cost and the level

of sophistication required to reliably plan for future power supply requirements. The tools utilized by FMPA allow great flexibility in assessing the impact of numerous driving factors on electricity growth and provide the ability to assess alternative growth scenarios.

Q. Does the load forecast process utilized by FMPA consider the major factors that will determine the need for power by the year 2001?

A. Yes it does. FMPA forecasts have considered the major demographic and economic factors, which influence the demand for electricity. We have specifically considered population and customer growth, the impact of weather, the price of electricity and general economic conditions in our forecast process.

Q. What are the major assumptions that are used in preparing the FMPA forecast?

A. FMPA forecasts continued economic growth for the service territory, based largely on the projected growth in the U.S. Gross Domestic Product (GDP) of approximately 2 to 3 percent per year. Inflation is projected to remain at low levels and the price of electricity is expected to remain constant throughout the forecast period. Forecasts are based upon normal weather conditions. Individual All-Requirements Project member customer projections are contained in Appendix 1C 16 1, of Exhibit ___ KUA-1

Q. Are the forecast assumptions used by FMPA reasonable?

A. Yes they are. The economic projections for inflation and GDP growth correspond with other generally recognized macro-economic projections for the economy. The projections for member customers are reasonable in light of historical growth that has

occurred.

Q. Please describe how FMPA addresses forecast uncertainty in evaluating the need for Cane Island Unit 3.

A. As mentioned earlier, forecasting error cannot be avoided and needs to be considered in developing power resource plans. The primary method for dealing with load forecast uncertainty is to prepare alternative forecasts by assuming different scenarios of events that will impact the forecast. FMPA has chosen to capture the potential levels of forecast uncertainty by establishing bandwidths around the base case energy and peak demand forecasts. An uncertainty factor of +/- 5 percent was selected as sufficient to capture the likely level of uncertainty expected during the forecast horizon. This procedure corresponds with statistical theory that indicates that, in absolute terms, the level of forecast uncertainty will increase as the length of the forecast increases. For example, in 1999 the uncertainty range for the FMPA summer peak load is 98 MW. This uncertainty range increases to 119 MW by 2010. In terms of the need for capacity, FMPA's reserve margin will fall to below 15 percent in 2001 even under the low load growth scenario.

Q. Does FMPA have a reliability need for the proposed Cane Island 3 unit in 2001?

A. Yes, FMPA requires the capacity from Cane Island 3 in 2001 to maintain system reliability. As demonstrated in Table 1C.7-1 of Exhibit ___ KUA-1, a deficit of approximately 110 MW occurs in the year 2001 assuming the 18 percent reserve margin and base case load forecast. The need is further demonstrated in sensitivities to the base case load forecast and a sensitivity to the reserve margin

The need for power under the high load forecast, displayed in Table 1C.11-3 of Exhibit ___ KUA-1, actually occurs in 2000, with approximately 25 MW necessary to maintain the 18 percent reserve margin. Since no planning alternative evaluated would be available before 2001, a purchase from an existing partial requirements contract would be required.

The need for power is even demonstrated under the low load growth scenario in 2001. This demonstrates the critical necessity of capacity required from the proposed Cane Island 3 unit. Table 1C.11-1 of Exhibit ___ KUA-1 displays the need for power in 2001 assuming the low load and energy growth scenario.

FMPA also performed a sensitivity analysis to address if the reserve margin criterion was routinely set at 15 percent, would this delay the construction of the proposed Cane Island 3 unit. As Table 1C.11-10 of Exhibit ___ KUA-1 indicates, even under a lower reserve margin criterion, the need for the proposed Cane Island 3 unit is demonstrated.

Q. **Is the timing of FMPA's need for its proposed combined cycle unit appropriate?**

A. Yes, based upon the base case forecast of peak demands, the numerous sensitivities conducted, and the schedule required for construction of the unit, the timing is appropriate.

I have previously stated in my testimony the essential need for the proposed combined cycle unit in 2001 to maintain reserve margins at an adequate level

Based upon the lead times to obtain certification under the Florida Electric Power Plants Siting Act and to order a combustion turbine for the combined cycle, and the schedule to construct the facility, now is the most appropriate time to pursue the need for Cane Island 3. Delays in the ordering of the combustion turbine or licensing could have potentially large effects as to whether the facility will be ready in time to meet peak demands for the summer of 2001. As the schedules shown Figure 1A.2-2 of Exhibit ___ KUA-1 display, the timing for the need application is critical to the facility being available in June of 2001.

Q. Will the proposed combined cycle unit contribute to the electrical system reliability and integrity of FMPA and Peninsular Florida?

A. Yes, FMPA must acquire additional capacity in 2001 or it will not be able to maintain system reserve margins. Without the addition of Cane Island 3 in 2001, FMPA would be required to purchase power from a market where there may not be power available.

The proposed combined cycle for Cane Island 3 will also contribute to the electrical system reliability and integrity for Peninsular Florida. With reserve margins projected by the Florida Reliability Coordinating Councils 1997 Ten-Year Plan for Peninsular Florida at 15 percent in the summer of 2001 after exercising all of the load management and interruptible load, the need for Cane Island 3 is very well demonstrated. The construction of Cane Island 3 will lead to a more reliable Peninsular Florida system due to Cane Island's interconnections to the grid.

The proposed combined cycle for Cane Island 3 is a very reliable, proven source of

generation that will contribute to system reliability and integrity, while reducing production costs for generation.

Q. Will the proposed combined cycle unit contribute to the fuel diversity for FMPA and Peninsular Florida?

A. Yes. FMPA currently has 13 percent of its generation coming from natural gas units, with power purchases included in the mix. The addition of Cane Island 3 would increase the natural gas generation to 21 percent after the addition. Natural gas would represent the 2nd largest percentage of FMPA's generation with purchased power at 55 percent of capacity. With natural gas prices to remain low and ample supplies projected, it is apparent that natural gas is the optimal fuel choice. Exhibit ___RLC-2 displays FMPA All-Requirements capacity before the addition of Cane Island 3 in 1998 (Figure 1) and after the addition in 2001 (Figure 2).

The Cane Island facility will also be capable of burning No. 2 oil as backup fuel in the event that natural gas would be unavailable. This provides flexibility and assurances that Cane Island 3 would be a reliable source of generation.

Q. Has FMPA provided adequate assurances regarding available primary and secondary fuel to serve the proposed facility on a long-term and short-term basis at a reasonable cost?

A. Yes, FMPA has requested via the open season of FGT up to 25,000 MBtu/day in addition to FMPA's current approximate 46,000 MBtu/day FTS-1 and FTS-2 summer transportation entitlements to support the Cane Island facility. In addition, FMPA is a member of Florida Gas Utilities (FGU), which is an organization that manages

transportation entitlements for each of its members. FMPA can schedule additional transportation capacity from FGU based upon the total allocation of transportation through FGU members.

In the event that natural gas would be unavailable, Cane Island 3 will be able to burn No. 2 oil to provide generation to FMPA All-Requirements members with storage equivalent to 3 days of full load operation planned.

Q. Has FMPA adequately explored and evaluated the availability of purchase power from other electric utilities?

A. Yes, FMPA issued on May 28, 1997, a Request for Proposals (RFP), provided as Exhibit ___RLC-4, for the supply of capacity and energy. The RFP was issued concurrent with a similar RFP by Kissimmee Utility Authority (KUA). The comparison of power supply bids took into consideration many applicable pricing parameters including fixed and variable O&M charges, fuels commodity and transportation costs, applicable transmission rates, transmission upgrade costs, and system losses. Certain non-price parameters were also considered in the evaluation including contract term, firmness of supply, commercial viability, and regulatory framework.

The RFP requested proposals for the following three 120 MW blocks of capacity:

Capacity	Commence Service	Contract Period
120 MW	December 16, 2000	Approximately 5 years (short term)
120 MW	December 16, 2001	Approximately 7 years (mid term)
120 MW	June 1, 2001	Approximately 20 years (long term)

FMPA received 33 proposals from 17 bidders in response to the RFP. The capacity of all proposals in the initial screening phase totaled approximately 3,500 MW The RFP specified that FMPA would consider bids in the three contract periods of approximately 5 years, 7 years, and a minimum of 20 years. The bids received were grouped into the three previously mentioned categories and analyzed against the self-build option.

The evaluation consisted of a three stage screening analysis of the proposals. Stage I evaluation focused on the completeness of each proposal package and satisfaction of specified minimum requirements but did not address the price and non-price substantive criteria in each bid.

The Stage II evaluation centered primarily on the relative pricing of each proposal as compared to each of the other similar proposals. A busbar analysis was conducted to determine the cumulative present value on a $/MWh basis relative to each other on a similar term bid and a) for the short- and medium-term proposals, to the cost of purchase power based on projected market based rates and b) for the long-term proposals, the cost of FMPA's self-build project alternative.

In the Stage III evaluation, both price and non-price factors were considered in the evaluation of the most competitive remaining proposals in each of the short, medium, and long-term categories. Non-price factors considered at this stage included contract term, dispatchability, existing generation versus planned, ability to finance new facilities, fuel risk, firmness of supply, transmission capability/availability, viability of technology, environmental considerations, and regulatory considerations. Each of

these items represents an important risk factor in selecting both the short-list of proposals, and ultimately, the companies with which FMPA desires to contract

There were two bids that remained as potential candidates for the long-term evaluation, a bid by Constellation Power Development and a bid by Tarpon Power Partners. Each of these bids was ultimately rejected due to two factors; the technology that was proposed and the regulatory considerations.

Both bids involved the construction of a new combined cycle facility using Westinghouse 501G combustion turbines. FMPA believes that the construction of a combined cycle utilizing Westinghouse's new 501G combustion turbine represents significant risk to their customers. The 501G technology represents cutting edge technology that inherently is a risky proposition for the installation in 2001. While the machine provides a small improvement in efficiency and higher output over the 501F machine selected for Cane Island 3, the risk associated with this machine for the installation in 2001 is too large for FMPA to assume. FMPA does not wish to consider the construction of the 501G technology before these units have been proven as reliable sources of generation to insure FMPA customers have the most reliable, cost effective generation resources available to them.

The two long term bids that remained after the Stage III screening were also eliminated from further consideration because they were considered merchant plants. The regulatory framework for merchants plants in Florida is unclear at this juncture. The PSC formally decided last year not to address the question of whether or not independent power producers (IPPs) would be allowed to build "merchant plants" in

Florida. This decision, to not decide until later, imposes several questions as to whether merchants plants will be able to build in Florida and will definitely delay the construction of such facilities in order to meet the identified 2001 need for power.

In summary, Cane Island 3 represents the only long-term option available to FMPA and has proven to be the most cost effective option. FMPA is currently negotiating with all the short and medium term bidders that made the short list for purchased power.

Q. Has FMPA adequately explored and evaluated the availability of purchase power from qualifying facilities and non-utility generators?

A. Yes. The RFP process did not exclude qualifying facilities or non-utility generators from bidding.

Q. Does this complete your prefiled testimony?

A Yes, it does.

Corrections to Cane Island 3
Need for Power Application

1. On page 1C.2-23, in column 3 of the table labeled Generating Member Firm Purchases, for the year 1998, change "325" to "322", and change "1130" to "1127" in the last column.

2 On page 1C.5-7, on the last paragraph first line last word, change "date" to "data".

3. On page 1C.7-3, in column 4 of the table labeled Total Capacity (MW), for the year 1998, change "1130" to "1127", and change "29.81" to "29.43" in the last column of the same line.

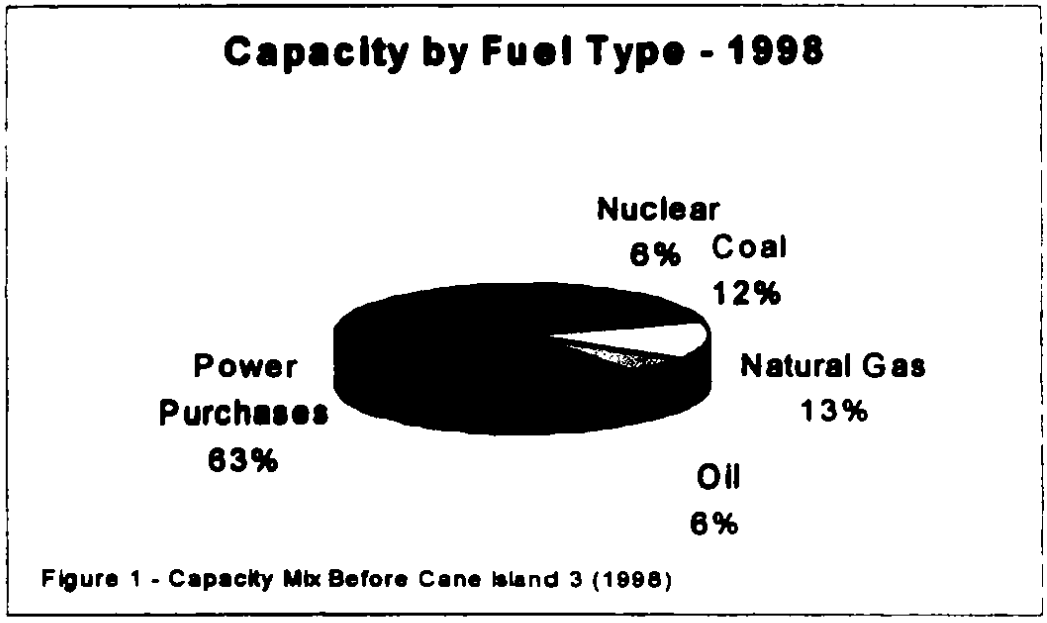


Figure 1 - Capacity Mix Before Cane Island 3 (1998)

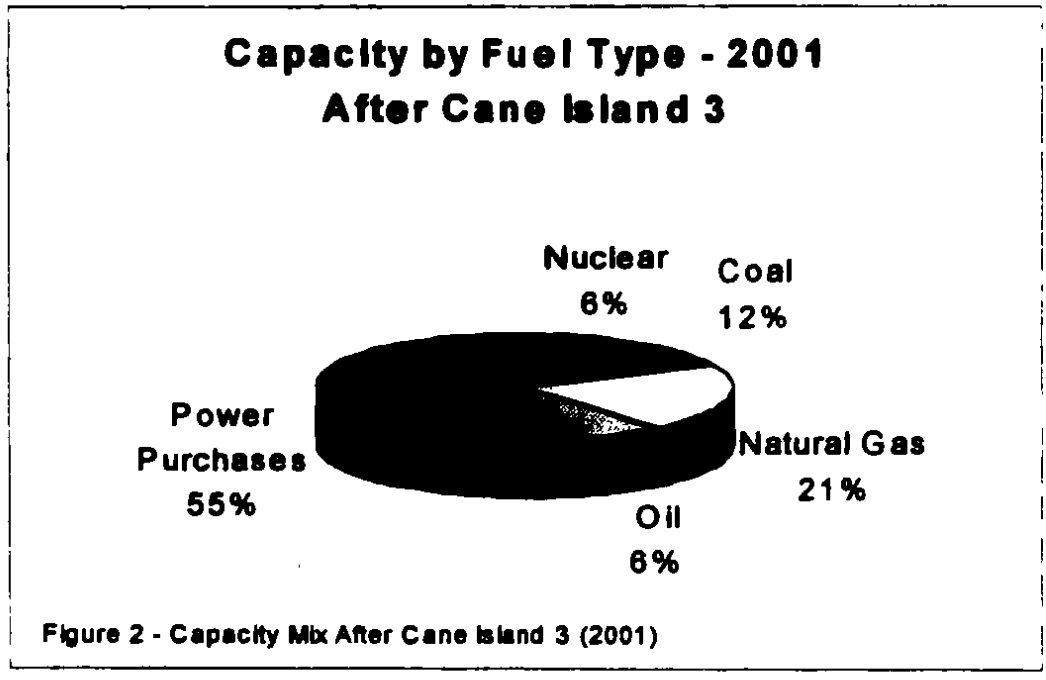


Figure 2 - Capacity Mix After Cane Island 3 (2001)

FMPA LOAD FORECAST

Year	Summer Peak Demand (MW)	Winter Peak Demand (MW)	Net energy For Load (GWH)
1998	892	846	4,317
1999	988	1,025	4,965
2000	1,011	1,049	5,081
2001	1,034	1,074	5,194
2002	1,056	1,097	5,305
2003	1,077	1,120	5,411
2004	1,098	1,142	5,513
2005	1,118	1,163	5,611
2006	1,136	1,182	5,703
2007	1,154	1,201	5,790
2008	1,171	1,218	5,873
2009	1,187	1,235	5,952
2010	1,202	1,251	6,026
2011	1,217	1,266	6,097
2012	1,229	1,280	6,163
2013	1,242	1,293	6,228
2014	1,254	1,305	6,283
2015	1,265	1,317	6,338
2016	1,276	1,328	6,389
2017	1,286	1,338	6,437
Growth Rate 1998-2017	1.9%	2.4%	2.1%

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

KISSIMMEE UTILITY AUTHORITY

FLORIDA MUNICIPAL POWER AGENCY

TESTIMONY OF DANIEL J. RUNYAN

DOCKET NO. 980802-EM

JULY 27, 1998

Q. Please state your name and business address.

A. My name is Daniel J. Runyan. My business mailing address is 11401 Lamar, Overland Park, Kansas 66211.

Q. Who is your employer and what position do you hold?

A. I am employed by Black & Veatch LLP (Black & Veatch) as a system planning consultant in the Plant Services Department of the Power Division.

Q. Please describe your responsibilities in that position.

A. As a system planning consultant for Black & Veatch I am responsible for providing consulting services for utility and non-utility clients. The consulting services encompass a wide variety of services including: load forecasts, conservation and demand-side management evaluations, reliability criteria and evaluations, development of generation unit addition alternatives, optimal generation expansion modeling, production cost modeling, economic and financial evaluations, feasibility studies, pro forma analysis, and power market studies.

Q. Please summarize your background and experience.

A. I received a Bachelors of Science degree in mechanical engineering from the University of Missouri-Columbia. I have taken and passed the FE exam and am a Associate Member of the American Society of Mechanical Engineers.

I have been employed by Black & Veatch since 1996 as a system planning consultant in the power sector advisory services. Since that time I have provided planning services for several projects, including many projects in Florida. I have provided system planning consulting services for the following Florida utilities: Kissimmee Utility Authority (KUA), Florida Municipal Power Agency (FMPA), Orlando Utilities Commission (OUC), Jacksonville Electric Authority (JEA), and City of Lakeland Electric and Water (Lakeland). In 1998 I assisted several utilities in Florida to prepare their 1998 Ten-Year Site plans: including KUA, JEA, Lakeland, and OUC.

I have extensive experience with providing consulting services using production cost and optimal generation expansion programs including POWRPRO, POWROPT, EGEAS, and PROSYM. I have had used these programs in providing services to the following firms:

- Kissimmee Utility Authority
- Florida Municipal Power Agency
- Jacksonville Electric Authority
- City of Lakeland Electric and Water
- Texaco
- Western Farmers Cooperative
- Empire Electric District

- City of Sterling, Kansas
- Atlantic City, Iowa
- Puerto Rico Power Authority
- Wyoming Public Service Commission

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to address FMPA's need for power as it relates to Cane Island Unit 3. In my discussion of FMPA's need for Cane Island Unit 3, I will summarize the methodology evaluations conducted to determine the least-cost generation alternative for FMPA, demonstrate the proposed combined cycle is the most cost- effective alternative available, and summarize the impacts of delaying the construction of the Cane Island Unit 3.

Q. Have you prepared any exhibits as part of your direct testimony?

A. Yes. I have prepared one Exhibit, Exhibit ___DJR-1, which is attached and included as part of my testimony.

Q. Were there Subsections of the Cane Island Power Park Unit 3 Need for Power Application prepared by you or under your direct supervision?

A. Yes. Subsections 1C.3.0, 1C.4.0, 1C.8.0, 1C.9.0, 1C.10.0, 1C 11.0, 1C.13 0, and 1C.14.0 in Exhibit ___ KUA-1 were prepared by me or under my direct supervision.

Q. Are you adopting these Subsections as part of you testimony?

A Yes, I am

Q. Are there any corrections to these Subsections?

A. Yes, corrections have been identified and included as Exhibit ___DJR-1. The corrections identified are minor and have no significant impact on the need for Cane Island Unit 3.

Q. Has FMPA adequately explored alternative generating technologies?

Yes, FMPA reviewed and evaluated several generating technologies and demand-side programs to arrive at the least-cost cumulative present worth plan. The evaluation encompassed demand-side alternatives, unconventional alternatives, and conventional alternatives. Each of the alternatives were evaluated on a screening level to determine cost effectiveness before modeling in detail in a production cost model.

Several conventional supply-side alternatives were considered for FMPA. The size of the alternatives selected considered the need for capacity and the suitability of the Cane Island site for installation of the alternatives. Conventual alternatives considered for capacity expansion include:

- Pulverized coal,
- Fluidized Bed,
- Combined Cycle, and
- Simple Cycle combustion turbines.

Performance and O&M cost estimates were complied for each capacity addition alternatives. Details of the conventual alternatives are provided in Subsection 1A 6 6 of Exhibit ___ KUA-1.

FMPA conducted an evaluation of potential long-term power purchase options to

consider against self-build alternatives. As Richard L. Casey testified, none of the long-term power purchase options were viable or lower in cost than Cane Island Unit 3.

With the large number of alternatives explored, a screening analysis was performed to eliminate alternatives that would not be economical or feasible. Detailed production cost modeling to determine the optimal expansion plan requires screening analysis to ensure computer modeling is efficient. The screening process was conducted in two phases. Phase I considered site requirements, capital costs, and commercial feasibility as criteria for elimination Based upon Phase I screening analysis, only conventional alternatives remained as potential sources for self-build options. Phase II screening was conducted applying the Electric Generation Expansion Analysis System (EGEAS) developed by Electric Power Research Institute (EPRI).

Q. Has FMPA demonstrated that its proposed combined cycle unit is the most cost-effective alternative available?

A. Yes, FMPA has conducted detailed analysis to determine the least-cost supply plan to meet the growing needs of its participants. To determine the least-cost supply plan, FMPA utilized EGEAS to determine the best plans ranked on a cumulative present worth basis. This methodology is utilized throughout the industry and considered standard practice for economic evaluations

The supply-side alternatives that passed the screening analysis were include in the detailed optimization analysis in EGEAS Generating alternatives evaluated by

EGEAS included two coal units, four combined cycle units, and 4 simple cycle combustion turbine units. Details of the costs and performance characteristics are summarized in Subsections 1A.6.6 and 1C.9.0 of Exhibit ___ KUA-1. The plans were analyzed over a twenty year period from 1998 to 2017. FMPA views this planning horizon to reflect the appropriate time interval for resource evaluation in today's energy market.

FMPA developed a base case economic evaluation for a base case scenario of the future, which assumed the base case FMPA All-Requirements load forecast, base case fuel price forecast, and minimum reserve margin of 18 percent. Based upon the cost and performance characteristics described in detail in Subsection 1C.9.0 and summarized in Table 1C.10-1 of Exhibit ___ KUA-1, the expansion plan outlined in Table 1C.10-2 of Exhibit ___ KUA-1 represents the least-cost plan for FMPA. The expansion identifies the proposed Cane Island 3 combined cycle as the least-cost option for capacity addition in 2001 followed by a simple cycle 7EA combustion turbine in 2007.

While resources are evaluated over a 20 year period, FMPA does not formally plan beyond a 10 year period. With load growth, economic parameters, technology development, regulatory issues, and all other future conditions changing rapidly it is very uncertain what future conditions will be like. Therefore, FMPA has forecasted what it expects as a reasonable assumptions for the future, but views the period beyond 2007 as too uncertain to begin formal planning. Because EGEAS requires capacity to fulfill the reserve margin requirements beyond the year 2007, generating units were selected on the least-cost cumulative present worth basis to fulfill capacity

requirements for the entire 20 year period. It is uncertain at this juncture if FMPA would construct the units identified beyond 2007.

FMPA performed several sensitivity analyses to measure the impact of key assumptions on the least-cost plan. The sensitivity analyses include: low load and energy growth, high load and energy growth, low fuel price escalation, high fuel price escalation, a scenario where a constant differential between natural gas/oil versus coal is maintained over the planning horizon, fifteen percent reserve margin case, and a case where the cost of the proposed combined cycle is increased by 20 percent. Details of the analyses results are indicated in the need for power application in Subsection 1C.11.0 of Exhibit ___ KUA-1. The results indicate that the proposed combined cycle is the least-cost alternative in all scenarios for capacity addition in 2001 except the high load growth scenario in which two units were selected for installation by EGEAS. This demonstrates the robustness of the expansion plan identified.

FMPA has also considered several other factors that makes the selected 501F 1x1 proposed combined cycle the best alternative for capacity addition in 2001. The 501F 1x1 combined cycle is a proven source of generation with high reliability levels and efficient natural gas generation. While several other technologies were considered, the 501F 1x1 combined cycle offered the best option for providing reliable and cost effective generation for the All-Requirements participants.

Q. Are there any adverse consequences to FMPA customers if the proposed combined cycle unit is not completed in the time frame requested?

A. Yes, KUA, FMPA, and Peninsular Florida will fall below their specified minimum reserve margins in the year 2001 if the Petitioners request is not granted. This could lead to potential outages and system failures across the grid, causing major problems for power suppliers in Peninsular Florida. The customers will suffer adverse consequences with the possibility of inadequate power supply and potentially very high cost electricity. With the low reserve margins projected for Peninsular Florida in 2001, the potential for insufficient power supplies may exist. If FMPA assumed it could obtain additional partial requirements purchases for 2001 and build the combined cycle in 2002, the minimal impact to cumulative present worth costs would be $1.8 million dollars.

Q. Does this complete your prefiled testimony?

A. Yes, it does.

Corrections to Cane Island 3
Need for Power Application

1. On page 1C.4-3, in the last column for the year 2017, the price of "5.11" should replace the blank.

2. On page 1C.10-1, in the second paragraph the second sentence should have a "." at the end of the sentence.

3. On page 1C.10-2, in the last paragraph the second sentence should have a "." at the end of the sentence.

4. On page 1C.10-6, in the fourth column for the year 1998, change "1130" to "1127" and in the last column for the year 1998, change "29.81" to "29.48".

5. On page 1C.11-2, in the fourth column for the year 1998, change "1130" to "1127" and in the last column for the year 1998, change "36.38" to "36.03".

6. On page 1C.10-6, in the fourth column for the year 1998, change "1130" to "1127" and in the last column for the year 1998, change "23.44" to "23.12".

BEFORE THE PUBLIC SERVICE COMMISSION

KISSIMMEE UTILITY AUTHORITY

FLORIDA MUNICIPAL POWER AGENCY

TESTIMONY OF JAMES CRAIG DUNLAP

DOCKET NO. 980802-EM

JULY 27, 1998

Q. Please state your name and address.

A. My name is James Craig Dunlap and my business address is 111 North Orange Avenue, Orlando, Florida 32801.

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

A. I am employed by Dunlap & Associates, Inc. as Financial Advisor for Kissimmee Utility Authority (KUA) and the Florida Municipal Power Agency (FMPA).

Q. Please describe your responsibilities in that position.

A. As Financial Advisor for KUA and FMPA, I have overall responsibility for managing and monitoring the general financing and bonding activities associated with large-scale projects. My primary responsibilities include development of refunding programs and assisting in preparation of financial statements, which include debt capacity analyses, long-term capital planning, and cost/benefit analyses.

Q. Please state your professional experience and educational background.

A. I have over 25 years of experience in the financing industry. In 1980, I was appointed by the Governor of Florida to the Municipal Advisory Council of the Division of Bond

Finance. I was one of two investment banking representatives appointed and served on the Council until 1986. I was named Associate of the Year by the Florida Municipal Utilities Association. I received a bachelors in Business Administration from Florida State University and a Masters degree in Business from the University of North Dakota.

I have been involved with the arrangement of financing for a wide range of municipal facilities including:

a). Water & sewer systems.

b). Solid waste treatment facilities.

c). General school and higher education buildings.

d). Airport facilities.

e). Public power projects.

f). Special District and capital improvement projects.

Municipal clients I have assisted include the Cities of Boca Raton, Cocoa Beach, Vero Beach, Longboat Key, St. Petersburg, Temple Terrace, Miramar, Ft. Lauderdale, West Palm Beach, Tallahassee, Coral Springs, Ormand Beach, Leesburg, Naples, Jacksonville Beach and the City of Safety Harbor. County clients include Pasco and Broward. Additional clients include the Reedy Creek Improvement District, Florida Municipal Power Agency (FMPA), Kissimmee Utility Authority (KUA) New Smyrna Beach Utilities Commission and Sunshine State Governmental Financing Commission.

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

A. The purpose of my testimony is to address the financial feasibility of the addition of Cane Island Unit 3 for KUA and FMPA.

Q. What, if any, financial impacts will KUA and FMPA experience in conjunction with the construction of Cane Island 3?

A. There are no adverse financial implications foreseen associated with building Cane Island Unit 3. Bond ratings of both utilities are projected to remain unchanged, debt service coverage is projected to be sufficient to meet bond covenants and market competitiveness will improve as higher cost generation is displaced by more efficient generation with Cane Island Unit 3.

Q. Will KUA or FMPA experience difficulty in obtaining sufficient financing for Cane Island Unit 3?

A. No. The bonding ability of both utilities is strong, due to prudent financial management policies. In summary, it is my opinion that both KUA and FMPA will be capable of financing their respective portions of Cane Island Unit 3.

Q. Does this complete your prefiled testimony?

A. Yes, it does.