

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Joint Petition For)	DOCKET NO. 910382-EM
Supplemental Certification of)	ORDER NO. 24664
Construction and Operation,)	ISSUED: 6/13/91
Including Determination of Need)	
for Electrical Power Plant, By)	
Orlando Utilities Commission,)	
Florida Municipal Power Agency,)	
and Kissimmee Utility Authority.)	

Pursuant to Notice, a Prehearing Conference was held on June 12, 1991, in Tallahassee, Florida, before Commissioner Michael Mck. Wilson, Prehearing Officer.

A. APPEARANCES:

THOMAS B. TART, Esquire, General Counsel, Orlando Utilities Commission, 500 South Orange Avenue, Orlando, Florida 32801, ROY C. YOUNG, Esquire, and C. LAURENCE KEESEY, Esquire, Young, Van Assenderp, Varnadoe & Benton, P.A., Post Office Box 1833, Tallahassee, Florida 32302-1833 on behalf of Petitioner Orlando Utilities Commission; FREDERICK M. BRYANT, Esquire, Moore, Williams, Bryant & Peebles, P.A., General Counsel, Florida Municipal Power Agency, Post Office Box 1169, Tallahassee, Florida 32302 on behalf of Petitioner Florida Municipal Power Agency; and ROY C. YOUNG, Esquire, on behalf of Petitioner Kissimmee Utility Authority.

On behalf of the Petitioners.

IRBY G. PUGH, Esquire, 218 Annie Street, Orlando, Florida, 32806 and DEB SWIM, Route 35, Box 1815, Tallahassee, Florida 32310.

On behalf of The Sierra Club, Florida Chapter.

M. ROBERT CHRIST, Esquire, Florida Public Service Commission, Fletcher Building, Room 226, 101 East Gaines Street, Tallahassee, Florida 32399-0850

On behalf of the Florida Public Service Commission.

DAVID E. SMITH, Esquire, Office of the General Counsel, 101 East Gaines Street, Fletcher Building, Suite 212, Tallahassee, Florida 32399-0861.

Counsel to the Commissioners.

DOCUMENT NUMBER-DATE

05990 JUN 13 1991

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PREHEARING ORDER

Background

On March 15, 1991, Orlando Utilities Commission, Florida Municipal Power Agency, and Kissimmee Utility Authority (Petitioners) petitioned this Commission to certify that a need exists for the construction of a 440 MW net, pulverized coal fueled steam electric generating unit and related facilities pursuant to Section 403.519, Florida Statutes (1990). The location for the proposed unit, Curtis H. Stanton Energy Center 2 (Stanton 2) was certified previously by the Governor and Cabinet sitting as the Siting Board on December 14, 1982 as a site with an ultimate generating capacity of approximately 2000 MW. On April 22, 1991 the Commission entered an order on prehearing procedure (Order No. 24397) directing the parties to file prehearing statements on or before June 5, 1991. In lieu of the prehearing statements the parties filed a draft prehearing order on that date. Also in compliance with Order No. 24397, the petitioners filed their witnesses testimony on May 6, 1991. Due to time constraints placed on the Commission by Rule 25-22.080(2), F.A.C. and the lack of dates available for hearing, the petitioners stipulated to an extension of the 90-day time period within which a final hearing must be held pursuant to the rule, to June 28, 1991. Accordingly, a final hearing will be held on June 18 and 19, 1991. On May 31, 1991, Order No. 24612 granted Sierra's petition to intervene.

Use of Prefiled Testimony

All testimony which has been prefiled in this case will be inserted into the record as though read after the witness has taken the stand and affirmed the correctness of the testimony and exhibits, unless there is a sustainable objection. All testimony remains subject to appropriate objections. Each witness will have the opportunity to orally summarize his testimony at the time he or she takes the stand.

Use of Depositions and Interrogatories

If any party desires to use any portion of a deposition or an interrogatory, at the time the party seeks to introduce that deposition or a portion thereof, the request will be subject to proper objections and the appropriate evidentiary rules will govern. The parties will be free to utilize any exhibits requested at the time of the depositions subject to the same conditions.

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Order of Witnesses

In keeping with Commission practice, witnesses will be grouped by the subject matter of their testimony. The witness schedule is set forth below in order of appearance by the witness's name, subject matter, and the issues which will be covered by his or her testimony.

B. WITNESSES

<u>Witness</u>	<u>Subject Matter</u>	<u>Issues</u>
Thomas E. Washburn	Stanton 2 fuel supply, non-fuel O&M costs, performance of Stanton 1, scenarios and economic parameters used in evaluation of Stanton 2, availability of fuels, joint requests for power supply proposals and purchase power proposals, description of OUC's system and proposed unit power sale from Stanton 2.	4,5,7,8, 10,11,12,13, 15,16,17,18, 26
Earl C. Windisch	Stanton 2 site, design, cost, schedule and engineering characteristics.	4,5,6,7,8, 13,15,18,19, 22,23,26
Myron R. Rollins	Fuel price projections, Peninsular Florida capacity needs, Stanton 2's consistency with the statewide avoided unit selected in the 1989 Planning Hearings, cost and operating characteristics of conventional alternatives, feasibility of hydroelectric and nuclear power as alternatives to Stanton 2, methodology for determining a need for Stanton 2, the	1,3,4,5,6, 7,8,9,10,11, 12,13,14,17, 18,19,20,23, 24,25,26

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<u>Witness</u>	<u>Subject Matter</u>	<u>Issues</u>
	evaluation and reliability criteria, supply side alternatives developed, supply side screening, alternate plan development, economic and sensitivity analysis, strategic considerations, consequences of the delay of Stanton 2, analysis of the 1990 Clean Air Act Amendments.	
Gerald F. Erickson	OUC's planning process, Stanton 2 associated transmission requirements, OUC load forecasts, OUC's existing and ongoing conservation programs, qualifying facilities and financial analysis.	2,7,13,17, 20,21,26
Larry E. Stoddard	Technological and economical feasibility of advanced technologies.	13,18,19,26
Douglas L. Norland	Methodology and screening analysis used to evaluate demand side alternatives.	18,20,26
John H. Broehl	Methodology and detailed analyses used to estimate system load shape impacts and program costs of demand-side alternatives.	18,20,26
Robert C. Williams/ N.P. Guarriello	FMPA's power supply planning process, evaluation criteria, load forecast, conservation and demand side management programs, reliability criteria, supply side alternatives, alternative expansion plans, economic analysis, consequences of delay, and transmission	1,2,3,4,5,6 7,8,11,13,14, 16,17,18,20, 23,24,25,26

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<u>Witness</u>	<u>Subject Matter</u>	<u>Issues</u>
	considerations. In addition, Mr. Williams' subject matter includes LOLP analysis of Peninsular Florida.	
Abani K. Sharma	Overview of the KUA system.	3,13,20,26
Ludwig F. Funke	Summary of KUA's planning process, evaluation criteria, load forecast, conservation and demand side programs, reliability criteria, supply side alternatives, alternate expansion plans, economic analysis, consequences of delay of Stanton 2, financial analysis and transmission considerations.	1,2,3,4,5,7,9,11,13,16,17,18,20,23,24,25,26
Shahla S. Speck	Consistency of Stanton 2 with the needs of Peninsular Florida.	6,8,14,26
Dr. J.O. Blackburn	Conservation Alternatives to Building Stanton 2	2,3,4,7,9,13,17,18,19,20,23,26

Petitioners may offer rebuttal testimony orally at hearing.

C. EXHIBITS

<u>EXHIBIT NUMBER</u>	<u>WITNESS</u>	<u>DESCRIPTION</u>
<u>(OUC-1)</u>	Petitioners	Stanton Energy Center 2 Supplemental Site Certification Application
<u>(OUC-2)</u>	Petitioners	Notices

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<u>EXHIBIT NUMBER</u>	<u>WITNESS</u>	<u>DESCRIPTION</u>
<u>(TEW-1)</u>	Washburn	Orlando Utilities Commission Generation Capacity and Energy Mix
<u>(TEW-2)</u>	Washburn	Orlando Utilities Commission Residential Electric Rates
<u>(TEW-3)</u>	Washburn	Orlando Utilities Commission Stanton 1 Availability
<u>(TEW-4)</u>	Washburn	Orlando Utilities Commission, Florida Municipal Power Agency, and Kissimmee Utility Authority Joint Request for Power Supply Proposals, July 1990 Solicitation
<u>(TEW-5)</u>	Washburn	Orlando Utilities Commission Stage One and Two Evaluation Process Joint Request for Power Supply Proposals by R. W. Beck and Associates, December 1990
<u>(TEW-6)</u>	Washburn	Request for Proposals to Provide Firm Power to Orlando Utilities Commission, Florida Municipal Power Agency and Kissimmee Utility Authority
<u>(ECW-1)</u>	Windisch	Corrections to the Curtis H. Stanton Energy Center 2 Supplemental Site Certification Application

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<u>EXHIBIT NUMBER</u>	<u>WITNESS</u>	<u>DESCRIPTION</u>
<u>(ECW-2)</u>	Windisch	Curtis H. Stanton Energy Center 2 Project Planning Study
<u>(MRR-1)</u>	Rollins	Corrections to the Curtis H. Stanton Energy Center 2 Supplemental Site Certification Application
<u>(MRR-2)</u>	Rollins	Optimal Demand Side Expansion Cumulative Present Worth With Allowance Costs Included
<u>(FMP-1)</u>	Williams/ Guarriello	Corrections to the Curtis H. Stanton Energy Center 2 Supplemental Site Certification Application
<u>(FMP-2)</u>	Williams/ Guarriello	Florida Municipal Power Agency Member Interest and Entitlements in Stanton 2
<u>(SSS-1)</u>	Speck	Peninsular Florida 1997 Resource and Demand Survey
<u>(JOB-1)</u>	Blackburn	A conservation alternative to Stanton Energy Center Unit II (Stanton II) composite consisting of 17 pages.
<u>(JOB-2)</u>	Blackburn	Table 1 and Table 2 with explanations.

STAFF'S EXHIBIT LIST

<u>EXHIBIT</u>	<u>DESCRIPTION</u>
<u> </u>	Interrogatory 3-Estimated Demand Savings of Conservation Programs

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EXHIBITDESCRIPTION

_____	Interrogatory 6-RFP Evaluative Criteria
_____	Interrogatory 10-OUC Demand Savings Reported to the FCG
_____	Interrogatory 16-OUC Evaluation of Load Management
_____	Interrogatory 17-Load Management of Pool Pumps
_____	Interrogatory 18-OUC Reliability Level 1990-2008
_____	Interrogatory 20-Targeted Expected Unserved Energy
_____	Data Request-FPSC Cost Effectiveness Test For Load Management
_____	Data Request-Petitioners Standard Offer Contracts
_____	Data Request-Summary Of Non-Firm Load Tariffs
_____	Data Request-Comparison of OUC Stanton 2 with Orlando CoGen Limited
_____	Petition-DSM Evaluation
_____	Interrogatory 22-Coal Transportation Capability
_____	Interrogatory 23-Spec 61- 0408 \$ (one page) Preliminary Estimate Coal Cars Cost
_____	Interrogatory 24-SO2 removal current and projected

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EXHIBITDESCRIPTION

_____	Interrogatory 28 Page 2 of 7-Capital Cost Estimate Coal Cars
_____	Interrogatory 30-Combustion Waste Products
_____	Interrogatory 31-Heat rate et al
_____	Interrogatory 35-Impact Clean Air Amendments
_____	Interrogatory 40-UPS Sales - Value of SO2 Allowances
_____	Interrogatory 41-Toxics Section Clean Air Act
_____	Interrogatory 42-Selective Catalytic Reduction

PARTIES' STATEMENT OF BASIC POSITION

Orlando Utilities Commission (OUC): The joint petition for determination of need for Stanton Energy Center 2 should be granted. Stanton 2 is greatly needed by OUC and Peninsular Florida and meets all the statutory criteria under 403.519 F.S. for the Commission's determination of need. OUC's winter peak loads after adjusting for the effects of demand-side management programs, are projected to grow at an annual average rate of 3.8 percent through the year 2000 and 3.0 percent through the year 2020. This continued load growth results in a need for capacity addition in 1997 based on a 15 percent reserve margin. The use of the more encompassing expected unserved energy (EUE) criterion of 0.5 percent results in a need for capacity addition in 1996. An extension of the analyses conducted for the 1989 Planning Hearing indicates that Peninsular Florida will require over 1700 MW of additional capacity in 1996 and 1997 beyond that determined in the Long-Range Planning Study to maintain a 0.1 day per year loss of load criterion. Stanton 2 will be able to supply 440 MW of that capacity need.

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Stanton 2 will be designed as a replicate of Stanton 1. Stanton 1's performance has been outstanding with the unit achieving an equivalent availability of over 84.5 percent during its first three years of operation. Because Stanton 2 is a replicate of Stanton 1, its capital cost and operating cost are well defined. Stanton 2 will utilize common facilities constructed with Stanton 1 allowing OUC's customers to benefit from their earlier investment in these facilities. In addition, the replication process is estimated to save an additional \$23 million in capital cost. Stanton Energy Center's use of coal fuel ensures a reliable source of power available from domestic sources at reasonable costs and insulates rate payers from dramatic cost increases associated with oil and natural gas. In addition to supplying reliable power at a reasonable cost, Stanton 1 has operated significantly below its permitted emission levels. Stanton 2 will incorporate technological improvements to even further reduce emissions. OUC's corporate model predicts that the addition of Stanton 2 to OUC's system will result in base rate increases below the level of inflation.

OUC has evaluated all viable alternatives to Stanton 2 including the extensive bidding process for independent power supply and purchase power from utilities. The lowest cost independent power producer bid was 19.2 percent higher than Stanton 2. OUC did not receive any bids from utilities to supply purchase power. Evaluation of OUC owned supply-side alternatives indicates that Stanton 2 is 4.8 percent lower in cost than the next least cost alternative which is a combined cycle unit. Stanton 2 is also the least cost alternative for OUC under both the high and low growth sensitivity evaluations. OUC's 330 MW ownership share is projected to supply OUC's projected capacity needs until 2010. Evaluation of the 1989 Planning Hearing Avoided Unit Planning Study indicates that Stanton 2 would have been selected as the least cost alternative if its capital costs were used in the evaluations instead of the generic capital costs used in the Avoided Unit Study.

OUC periodically evaluates and implements demand-side management measures which are beneficial to all customers. OUC retained Battelle to further evaluate demand-side management measures to assure that there are no additional cost-effective demand-side management measures which could mitigate the need for Stanton 2.

The Battelle evaluations indicated the potential for 14 MW of additional winter peak demand reduction by 1997 was cost effective. The 14 MW of peak demand reduction and the associated demand-side program costs have been included in OUC's evaluations. Even with

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the 14 MW of peak demand reduction associated with new programs and 30 MW reduction associated with existing programs, Stanton 2 is needed to meet the 15 percent reserve criterion in 1997.

OUC has evaluated the number of allowances that will be available to it under the 1990 Clean Air Act Amendments. The evaluations indicate that OUC will have adequate allowances available to operate their system past the end of the planning period in 2020. Including the Environmental Protection Agency's \$1500 per ton allowance cost as an opportunity cost in the evaluations of Stanton 2 results in Stanton 2 being 4.4 percent lower in cost than the next lowest cost alternative which was a combined cycle.

Florida Municipal Power Agency (FMPA): The joint petition for the determination of the need for the Stanton Energy Center 2 should be granted. The FMPA participants will all require capacity addition on or before 1997 based on a 20 percent reserve margin criterion.

The load forecasts for FMPA participants were prepared using econometric techniques in which statistical relationships were developed using historical economic, demographic and electric system data. Peak demand for FMPA participants is projected to grow at an average annual rate of 2.3 percent from 1991 through 2021. The projected growth rates result in a 184 MW increase for FMPA participants from 1990 to 1997 and 806 MW from 1990 to 2021. Consequences of delay of construction of Stanton 2 include the need to supply an alternative resource to maintain the same level of system reliability that would be provided to the system by Stanton 2, and a cost impact of construction costs due to price escalation.

FMPA has examined and is actively promoting energy conservation programs. These ongoing programs are projected to result in a reduction in overall demand of 27 MW through the year 1997 and are taken into account in the load forecasts. Even with these conservation efforts, the FMPA participants are still projected to be capacity deficient by 1997.

FMPA's participants evaluated their most likely alternative to Stanton 2 including partial requirements purchases, construction of a 30 MW combined cycle plant, repowering and conversion of existing steam units to combined cycle generation and purchased power from a combined cycle generating plant. Present worth savings for Fort Pierce, Vero Beach, Key West, and Starke are projected to range from 0.6 percent to 2.5 percent with respect to total comparative revenue requirements over the period 1997 through 2021. The

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present worth savings for Lake Worth and Homestead are projected to be 1.4 and 1.6 percent respectively over the period 1997 through 2010. The present worth savings for the All-Requirements participants is 0.3 percent over the period from 1997 through 2021.

Stanton 2 should provide exemplary emission performance based on the duplicate design and performance of Stanton 1. SO₂ emission allowances have been taken into account in analysis of potential alternatives by adding EPA's price of \$1500 per allowance to the Stanton 2 costs. Stanton 2 will provide fuel diversity to FMPA participants through abundant and low cost coal supplies in addition to providing fuel diversity to Peninsular Florida.

Kissimmee Utility Authority (KUA): It is KUA's position that the joint petition for the determination of power should be granted. If Stanton 2 is not installed by 1997, KUA will not only have to replace its 16.9 MW share of Stanton 2 but the reliability of its purchased power from the rest of the grid will be reduced resulting in significant reliability reductions for KUA customers.

KUA's need for Stanton 2 is evidenced by its rate of growth, potential deterioration of its reserve margin, and questionable reliability of purchased power from the rest of the Peninsular grid.

KUA is one of the fastest growing electric systems in the U.S. Historic growth in peak demand has averaged 12.8 percent annually for the 1984 through 1990 fiscal years. The growth rate in peak demand is projected to grow at an average annual rate of 4.3 percent from 1990 through 2000 and 4.0 percent from 1990 through 2020. In the absence of Stanton 2, KUA will be forced to replace its 16.9 MW share by purchasing power from the Peninsular grid reducing its reliability and that of KUA.

KUA has employed conservation programs since 1982. The current electric demand and energy conservation plan was filed with the Florida Public Service Commission on February 1, 1990. Even with conservation programs in effect, including direct load control, KUA is projected to require 299 MW of capacity by 1997 and currently owns only 123 MW of capacity. No other non-generating alternatives have been identified, and even if they were, it is very unlikely that they could account for the 176 MW of capacity that will be required by 1997.

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In an effort to explore supply-side alternatives to Stanton 2, KUA participated with OUC and FMPA in the bidding process for independent power supply and purchase power. No bids were received for purchase power from utilities and the lowest cost independent power producer bid was 19.2 percent higher in cost than Stanton 2.

Economic evaluation of the options open to KUA indicate that Stanton 2 is the most cost effective alternative. Purchased power agreements, a combustion turbine and a combined cycle unit were evaluated. Participation in Stanton 2 offered present worth savings of \$62 million, \$41 million, and \$30 million, respectively, over these options.

In addition to offering the most economic alternative to KUA, Stanton 2's proven design has exhibited exemplary environmental compliance and will provide for fuel diversification in the face of volatile oil and gas price and availability.

SIERRA CLUB, FLORIDA CHAPTER (SIERRA): If conservation alternatives were implemented by OUC's own calculations, it would defer the time of building the Stanton II to the year 2002. The Co-Applicants, Kissimmee Utility Authority (KUA) and Florida Municipal Power Agency (FMPA), have not implemented conservation alternatives.

The alternatives of building Stanton II is not as cost effective as the combined cycle turbine for meeting OUC service area needs. Recent environmental discoveries are an additional constraint to placing Stanton Energy Center Number II on line at an earlier time than is necessary.

STAFF: Staff takes no basic position on the Joint Petition at this time.

D. STATEMENT OF ISSUES AND POSITIONS

FACTUAL ISSUES

RELIABILITY AND INTEGRITY

ISSUE 1: Are the reliability criteria used by the Petitioners to determine their need for 440 MW of capacity in 1997 to be satisfied by the proposed Stanton 2 reasonably adequate for planning purposes? (Stipulated)

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OUC:

Yes. A 15 percent reserve margin criterion was used to determine the need for Stanton 2 capacity in 1997 for OUC. The 15 percent reserve margin criterion should be considered a minimal reserve criterion. The other large municipalities in the state; Gainesville, Jacksonville, and Lakeland all use a 20 percent reserve margin. A strong case can be made that OUC should use a 20 percent reserve margin as well. The use of a 20 percent reserve margin would move the need for Stanton 2 up to 1996. The 15 percent reserve margin is applied to OUC's winter load forecast which includes the effect of peak demand reduction from additional demand-side management programs. Without the effects of these programs, Stanton 2 is projected to be needed a year earlier in 1996.

The expected unserved energy (EUE) criterion supports the 15 percent reserve margin. The OUC Long-Range Power Supply and Demand-Side Planning Study completed by Southern Electric International (SEI) concluded that OUC should use a dual criteria of a minimum 15 percent reserve margin above winter peak demand and a maximum 0.3 percent EUE on an unassisted basis. This means that no more than 0.3 percent of the total energy requirements would be met by emergency power purchases. OUC has since revised the 0.3 percent recommendation and increased the criterion to 0.5 percent since system costs were relatively flat in the area from 0.3 to 0.5 percent and OUC's participation in the Florida Municipal Power Pool increased the availability of emergency power purchases at a reasonable cost. While there is not an industry standard for EUE as there is for Loss of Load Probability (LOLP), the range of 0.3 to 0.5 percent is reasonable for OUC. The 0.3 and 0.5 percent criteria are both exceeded in 1996 indicating a need for the addition of Stanton 2 and supporting that capacity certainly needs to be added in the 1996-97 time frame.

LOLP was not used to evaluate OUC's need for capacity due to the difficulty of modeling assistance from other utilities. Like EUE, there is no established unassisted LOLP criterion which is comparable to the assisted criterion of 0.1 day per year.

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Capacity is projected to be needed no later than January 1, 1997 on OUC's system based on all reliability criteria. (Rollins)

FMPA: Yes. The FMPA participants use the reliability criterion that the reserve margin be a minimum of 20 percent.

The assumed reserve margin of 20 percent for FMPA was selected as an appropriate reserve capacity level to cover adverse weather conditions, forced and scheduled outages of generating equipment, transmission system outages, fuel supply interruptions and other factors. The 20 percent level is within the generally acceptable range for reserves utilized in the industry and within the State of Florida. (Williams/Guarriello)

KUA: Yes. KUA uses a 15 percent reserve margin as its reliability criterion. This reserve margin is not applied to firm (Partial Requirements) purchases. Historically, KUA's peak demand during adverse weather conditions has been as high as 12.4 percent above that expected during normal weather. Considering forced outages, scheduled maintenance, changes in unit capacity and the variability of peak demand due to weather conditions, a 15 percent reserve margin is the minimum that is acceptable. In fact, a strong case could be made for using a higher reserve margin for KUA. (Funke)

SIERRA: No position.

STAFF: Yes.

ISSUE 2: Are the load forecasts used by the Petitioners to determine their need for 440 MW of capacity in 1997 to be satisfied by the proposed Stanton 2 reasonably adequate for planning purposes?

OUC: Yes. OUC utilized the System for Hourly and Annual Peak and Energy Simulation (SHAPES-PC) end-use/econometric model from Battelle of Columbus, Ohio as the primary forecasting tool to develop a forecast from 1991 to 2020.

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OUC's "most likely" or base forecast is developed using the most likely assumptions about service area population, employment, and income provided by Fishkind and Associates. Since there is some uncertainty in any forecast associated with economic, demographic, technological and social changes, additional scenarios were developed to take into account high and low growth assumptions about the economy and demography under typical weather conditions. These alternative scenarios were used to develop high and low band forecasts of customers, sales, net energy for load, and winter and summer net peak demands.

The residential sector energy consumption and demand is developed using a bottom-up approach where hourly demand for each of seventeen individual appliances is forecasted first, and then energy is computed by summing these demands over a year.

The commercial and industrial sector energy consumption and demands are developed using econometric models in a top-down approach where annual energy is forecasted first, then allocated to hours using hourly use profiles. The commercial and industrial sector energy consumptions are then reclassified into OUC's rate classes, General Service Non-Demand (GSND) and General Service Demand (GSD) using econometric models.

The system hourly demand is the sum of the hourly demands of the residential, commercial, industrial and miscellaneous sectors for each hour of the year.

The system net energy for load is the sum of residential, GSND, GSD, and miscellaneous sectors' annual energy consumption adjusted for losses. (Erickson)

FMPA:

Yes. The load forecasts for the FMPA participants were prepared using econometric techniques in which statistical relationships were developed using historical economic, demographic, and electric system data. The relationships express changes in a dependent variable (such as electricity use) as a function of a number of influencing factors or

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independent variables. Econometric models assume that electricity use will be affected by the same key factors in the future as it was in the past.

Net energy for load was calculated as the sum of total sales to various customer classes, street lighting, utility use and system losses. Based on the availability of data, for some participants the customer classes were projected individually because in the past each had grown at a different rate. Individual treatment of each class allows the use of specific factors to explain the differential growth rates observed for each class, and to project growth for each class based on these factors. By-class econometric models were used in the load forecasts for Fort Pierce, Homestead, Key West, Vero Beach and Ocala. Aggregate econometric models were used in the load forecasts for Lake Worth, Starke, Bushnell, Clewiston, Green Cove Springs, Jacksonville Beach and Leesburg.

The estimating technique used in the FMPA Participants' load forecasts was multiple least squares regression. This method is used to determine the relationship between a dependent variable and an independent variable (temperature, population, income, etc.) based on the relative changes in the values of those variables through time. (Williams/Guarriello)

KUA:

Yes. The load forecasts for residential and general service customers were prepared using econometric techniques in which statistical relationships were developed using historical economic, demographic, and electric system data. The relationships express changes in a dependent variable (such as electricity use) as a function of a number of influencing factors or independent variables. Econometric models assume that electricity use will be affected by the same key factors in the future as it was in the past.

Net energy for load was calculated as the sum of total sales (residential use plus general service use), street lighting, use by KUA and system losses. The customer classes were projected individually because in the past each has grown at a different rate. Individual treatment of each

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class allows the use of specific factors to explain the differential growth rates observed for each class, and to project growth more accurately based on these factors.

The estimating technique used in this analysis was multiple least squares linear regression. This method is used to determine the linear relationship between a dependent variable and an independent variable (temperature, population, income, etc.) based on the relative changes in the values of those variables through time. (Funke)

SIERRA:

No. The load forecasts are deficient and contain inconsistencies. They cannot be regarded as reasonably adequate until the deficiencies and inconsistencies are remedied.

The load forecasts are deficient in that cost-effective conservation measures have not been fully considered. They are incomplete in that information needed to assess the validity of the econometric models is not given. The load forecast for OUC is inconsistent in that the load forecast model does not use the same end-use device kw and kwh data as does the model used to assess conservation alternatives. The "base case" of the latter - an estimate of the energy-efficient equipment which would be installed by customers in the absence of utility conservation programs - should be the same as the ones used in the load forecast. (Blackburn)

STAFF:

Yes, the petitioners load forecasts are reasonable for planning purposes.

PETITIONERS' NEED FOR ADDITIONAL CAPACITY

ISSUE 3:

Do the Petitioners as utilities interconnected with the statewide grid, exhibit a need for additional capacity in 1997?

OUC:

Yes. OUC exhibits a need for capacity for its system by 1997 at the latest. The only way that OUC would not need to add capacity is that if excess capacity were available on the statewide grid, and the cost of capacity was reasonable, then the

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capacity could be wheeled to OUC. Evaluation of Peninsular Florida's projected reserve margin indicates that the state will be below a 15 percent reserve margin during the winter of 1997/98 requiring capacity to be installed by 1997 to maintain a 15 percent reserve margin. Over 1700 MW of capacity above that shown in the 1989 Planning Hearing Generation Expansion Plan will need to be installed in Peninsular Florida by 1997 to maintain a 0.1 day per year LOLP. Since excess capacity is not available from the statewide grid, OUC needs to install additional capacity by 1997. (Rollins)

FMPA: Yes. Using the 20 percent reserve margin reliability criterion, the Fort Pierce Utilities Authority and the City of Vero Beach are projected to be capacity deficient in 1997 assuming no additional Partial Requirements (PR) purchases; the City of Homestead is projected to be capacity deficient in 1992 if there are no additional PR purchases; Lake Worth is projected to be capacity deficient in 1996 if there are no PR purchases; the City of Starke is projected to be capacity deficient by 1991 without additional PR purchases; the All-Requirements Project is projected to be capacity deficient in 1992 without additional PR purchases, and the Utility Board of the City of Key West is projected to be capacity deficient in 1993 when its FPL short-term power purchases terminate. (Williams/Guarriello)

KUA: Yes. KUA is expected to require approximately 299 MW of capacity in 1997. Existing capacity is approximately 123 MW. Thus KUA will require 176 MW of additional capacity in 1997. Purchase power will be required for a significant portion of this additional capacity. KUA's 16.9 MW share of Stanton 2 represents less than 10 percent of the additional capacity required. (Sharma, Funke)

SIERRA: No. This is not established. (Blackburn)

STAFF: No position at this time.

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ISSUE 4: Are there any adverse consequences to the Petitioners and their customers if the proposed Stanton 2 is not completed in the approximate time frame requested by the Petitioners?

OUC: Yes. Stanton 2 is the least cost alternative for OUC. If Stanton 2 is not constructed, another more expensive alternative will be required and the cost to OUC's customers will increase. Another adverse consequence is the decreased system reliability if Stanton 2 is not added. The economic health and welfare of the community and OUC's customers will be affected as a result of reduced system reliability. With reduced reliability, there would be a greater risk that OUC would be unable to serve their customers' loads.

Significant savings associated with Stanton 2 are due to savings associated with the replication of Stanton 1. If Stanton 2 is delayed, a point may be reached where replication is not practical or even possible and these savings would be lost forever to OUC's customers. (Washburn, Windisch)

FMPA: Yes. The initial consequence of delaying Stanton 2 is primarily the cost impact of construction costs due to price escalation, the potential loss of opportunities with respect to replicating work previously done for Stanton 1, and the need to supply an alternative resource to maintain the same level of system reliability that would be provided to the system by Stanton 2.

The Stanton 2 Project and the All-Requirements Project are projected to result in lower comparative power costs to the participants over the period 1997 through 2021 than the other likely alternatives assumed respectively for each participant. To the extent that Stanton 2 is delayed indefinitely, the benefit of lower cost capacity and energy will be foregone.

The Stanton 2 Project will displace, in part, generation from oil and gas fuel, and to the extent the project is delayed, a burden will be placed on the utilities in the state to obtain additional

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supplies of gas and oil fuels. If the Stanton 2 is delayed, FMPA will need to supply its capacity and energy from some other resource. (Williams/Guarriello)

KUA:

Yes. Stanton 2 is the least cost alternative for KUA. A one year delay in the commercial operation date for Stanton 2 would result in an increase of \$1.6 million in KUA's cumulative present worth system cost. Displacing the 16.9 MW participation in Stanton 2 with Florida Power Corporation stratified partial requirements power would result in an increase of \$62 million in KUA's cumulative present worth system cost.

If Stanton 2 is not completed in the approximate time frame requested, KUA system reliability will be negatively affected. KUA is strongly dependent upon purchase power. By 1997, Peninsular Florida will need to add more than 1700 MW of capacity in addition to the capacity additions shown to be needed in the Long-Range Planning Study submitted in Docket 880004-EU to maintain a 0.1 day per year LOLP. Stanton 2 represents 440 MW of that 1700 MW. If Stanton 2 is not installed in 1997, KUA will not only have to replace its 16.9 MW share, but the reliability of its purchase power from the rest of the grid will be reduced resulting in significant reliability reductions for KUA customers.

These reliability reductions can negatively affect the economy and negatively affect the health and welfare of KUA's customers especially the elderly who need heating and air conditioning and have other critical loads requiring dependable service. If Stanton 2 is not completed in the approximate time frame requested, KUA will lose an opportunity to further diversify its fuel mix with coal. Adequate domestic reserves of coal for hundreds of years have been identified which is not the case for gas or oil. Without Stanton 2, KUA's generating capacity mix will contain only 12.6 percent coal assuming the planned addition of a combustion turbine at KUA's Cane Island site in 1993. (Funke)

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SIERRA: Adverse impacts cannot be determined from the information given in the application. For OUC, additional conservation and load management can defer the need for Stanton 2 for five years. Costs to the utility and to its customers as a group will be lower. Costs of energy services to participating customers will be lower. Low-income customers have access to especially generous conservation programs. If other, non-low-income, non participating customers have higher rates, that is their choice.

For KUA, Stanton 2 may or may not be the least cost alternative. That has not been established.

For FMPA, eight of twelve participating cities have negative or marginal benefits over long periods from Stanton 2. The other four cities have conservation alternatives at least as large as their Stanton 2 participations. (Blackburn)

STAFF: No position at this time.

SYSTEM RELIABILITY AND INTEGRITY

ISSUE 5: Would the proposed Stanton 2 provide for electric system reliability and integrity to the Petitioners?

OUC: Yes. The addition of a 330 MW ownership share of Stanton 2 is projected to maintain OUC's reserve margin and thus its system reliability above 15 percent until the year 2010. The addition of coal fueled capacity will decrease OUC's dependence upon oil and gas which are subject to potential supply disruptions and further increase system reliability and integrity. Stanton 2 will be a replication of Stanton 1 which has proven to be a highly reliable unit. Stanton 2 is expected to exhibit the same high level of reliability. (Washburn, Windisch, Rollins)

FMPA: Yes. Each participant was requested to supply its current power supply plan to meet its load and reliability criteria utilizing resources other than Stanton 2. These alternative plans indicated that if no additional resources were added to each

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participant's system, that the capacity will fall short of each participant's reliability criteria by or before 1997. The addition of Stanton 2 capacity will help maintain system reliability and integrity by helping to maintain an adequate reserve margin. Stanton 2 would provide electric system reliability and integrity by further diversifying the fuel mix for FMPA participants. Stanton 2 would increase the ratio of non-gas and oil resources from 23 percent to approximately 31 percent in 1997 reducing FMPA participant's dependence on oil and natural gas. As a replication of Stanton 1, Stanton 2 is expected to exhibit the same high level of reliability. (Williams/Guarriello)

KUA:

Yes. The addition of Stanton 2 will add additional capacity to KUA's system, reducing KUA's reliance on purchased power. The addition of Stanton 2 will add additional capacity to the state wide grid increasing the reliability of purchase power from the grid. The addition of Stanton 2 will decrease both KUA's and the state's dependency on gas and oil fuels. As a replication of Stanton 1, Stanton 2 is expected to exhibit the same high level of reliability. (Funke)

SIERRA:

No position.

STAFF:

No position at this time.

ISSUE 6:

Will the proposed Stanton 2 provide for electric system reliability and integrity to Peninsular Florida?

PETITIONERS:

Yes. The addition of Stanton 2 will contribute to meeting Peninsular Florida's reserve criterion of 0.1 days loss of load probability (LOLP) per year. The addition of coal fueled capacity will decrease Peninsular Florida's dependence upon oil and gas which are subject to potential supply disruptions and further increase electric system reliability and integrity.

Over 1,700 MW of additional capacity above that shown in the Long-Range Planning Study for the 1989 Planning Hearing will need to be installed by 1997 to maintain a 0.1 day per year LOLP criteria.

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Stanton 2 will supply a portion of that need contributing to reliability and integrity for Peninsular Florida. (Windisch, Rollins, Williams, Speck)

SIERRA: No position.

STAFF: No position at this time.

ADEQUATE ELECTRICITY AT REASONABLE COST

ISSUE 7: Will the proposed Stanton 2 provide adequate electricity to the Petitioners at a reasonable cost?

OUC: Yes. Stanton 2 was found to be OUC's least cost alternative for capacity addition requirements in 1997. The cost of Stanton 2 was 4.8 percent cheaper on a cumulative present worth basis over the study prior than the next lowest cost alternative of adding a combined cycle. The evaluation of IPP bids provided another test for determining the reasonability of cost from Stanton 2. The evaluation indicated that Stanton 2 was 19.2 percent lower in cost than the least cost bid on a cumulative present worth basis. Stanton 2's projected high availability level assures that adequate electricity will be provided from Stanton 2. The addition of Stanton 2 is projected to result in a decrease in OUC's rates in real terms. (Washburn, Windisch, Rollins, Erickson)

FMPA: Yes. The combined present worth savings due to Stanton 2 for the Fort Pierce Utility Authority, the City of Vero Beach, Utility Board of the City of Key West, and Starke total \$36.566 million over alternative power supply sources over the 1997-2021 time period. The combined present savings due to Stanton 2 for the Cities of Lake Worth and Homestead total \$6.585 million over alternative power supply sources over the 1997-2010 time period. All Requirements participants will realize a \$11.941 million savings over alternative power supply sources over the same period. (Williams/Guarriello)

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KUA: Yes. KUA examined four viable options to meet addition power requirements from 1997 to 2020. These four alternatives in order of analyses were (1) addition of FPC purchases; (2) the Stanton 2 ownership option; (3) a combined combustion turbine option and (4) a combined cycle option. Participation in Stanton 2 represents the most cost effective alternative to KUA on a per MW basis. (Funke)

SIERRA: Stanton 2 will provide electricity at a cost which may be deemed reasonable only if lower cost conservation alternatives are not taken first. (Blackburn)

STAFF: No position at this time.

ISSUE 8: Will the proposed Stanton 2 provide adequate electricity to Peninsular Florida? (Stipulated)

PETITIONERS: Yes. Stanton 2 is being planned as a replication of Stanton 1 with a net generating capacity of 440 MW. The OUC has a proposed 75 percent ownership in Stanton 2 while FMPA and KUA will own a proposed 21.17 and 3.83 percent, respectively. OUC is planning to sell 110 MW of its ownership share of Stanton 2 as a unit power sale or some other form of firm capacity sale during the first few years of operation. OUC has had inquiries from several utilities regarding the purchase of the 110 MW and is currently negotiating with them.

Stanton 2's low heat rate and coal fuel will produce economical energy. This energy from OUC and FMPA's portion of the unit will be dispatched economically by the Florida Municipal Power Pool. Any excess energy from Stanton 2 after firm sales will be made available to Peninsular Florida through the Florida Electric Power Coordinating Group (FCG) Energy Broker. (Washburn, Windisch, Rollins, Williams, Speck)

SIERRA: No position.

STAFF: Yes, the proposed Stanton 2 will provide 440 MW of net generation to the Petitioners.

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ISSUE 9: Is the fuel price forecast used by the Petitioners reasonably adequate for planning purposes?

PETITIONERS: Yes. The base case fuel price forecast used is based on the 1990 Annual Energy Outlook by the Energy Information Administration (EIA). The 1990 Annual Energy Outlook forecast was selected because it was a recent forecast provided by a reputable source. In addition the EIA compared the forecast to forecasts developed by other major forecasters such as DRI/McGraw-Hill, the WEFA Group, Gas Research Institute, and The American Gas Association. The forecast compared favorably with these other forecasts. The coal price forecast from the 1990 Annual Energy Outlook was adjusted upward to reflect the higher costs of providing coal to Florida. The low sulfur coal price forecast was further adjusted upward to reflect the anticipated price increases in low sulfur coal resulting from the 1990 Clean Air Act Amendments. In addition to the base case fuel forecast, several other fuel forecasts were used for sensitivity analyses including the Florida Electric Power Coordinating Group (FCG) forecast developed for the 1989 Planning Hearing. (Rollins, Funke)

SIERRA: No. More recent forecasts should be used for natural gas and coal prices in comparing combined cycle units and Stanton 2. (Blackburn)

STAFF: Yes, Staff is of the opinion that the fuel forecasts as presented by the petitioners are reasonable on their face and should be accepted for the purposes of this proceeding.

ISSUE 10: Have adequate assurances been provided regarding available fuel to serve the needs of the Petitioners at a reasonable cost? (Stipulated)

PETITIONERS: Yes. OUC will be responsible for the administration and procurement of an adequate and reliable fuel supply. The coal for Stanton 1 is currently obtained from Blue Diamond Coal Company and delivered to the Stanton Energy Center by CSX Transportation. The contract with CSX Transportation has provisions to allow for the transportation of coal for Stanton 2. Coal is

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abundantly available and the CSX Transportation system has more than adequate capacity to deliver the coal.

OUC plans to seek bids for coal for Stanton 2 in the 1993 to 1994 time frame depending on market conditions and intends to obtain two firm contracts covering the majority of the coal requirements while also allowing for some spot market purchases. It is OUC's intention to obtain flexibility in the amount of coal to be delivered for each of the firm contracts to enable it to optimize purchases as market conditions change. OUC intends to simultaneously sign coal supply and transportation contracts after completion of the negotiations.

Contracts for a low-sulfur coal for Stanton 2 similar to the low-sulfur coal currently being burned in Stanton 1 will be pursued. Stanton 2 is designed, however, to burn the same wide range of coals as can be burned in Stanton 1 and is proposing BACT emission levels which would allow medium sulfur coals to be burned. This flexibility to obtain medium sulfur coals will help OUC to negotiate the purchase of low-sulfur coal at a reasonable price and assures that ample coal will be available. (Washburn, Rollins)

SIERRA: No position.

STAFF: Yes, Staff is of the opinion that OUC will continue to purchase the best mix of coal at the best price available.

ISSUE 11: Does the proposed Stanton 2 provide for adequate fuel diversity for each of the Petitioners' systems? (Stipulated)

OUC: Yes. OUC has strived to maintain a diverse mix of fuels which results in the ability to generate reliably and at low cost even during periods of high fuel cost or supply disruptions. Stanton 2 will further diversify OUC's mix by adding additional coal fueled capacity to the existing mix of coal, gas, oil and nuclear. OUC's Indian River

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Units provide OUC with the unique opportunity to generate a large portion of its energy requirements using oil or natural gas if the prices for these fuels become attractive. (Washburn, Rollins.)

FMPA: Yes. One of the principal risks in selecting a power supply plan that meets a utility's objective of reliability and economy is the projection of fuel costs which usually represent a significant portion of total power costs, and are usually the most volatile element of power costs. For this reason one major consideration is to maintain a fuel mix that mitigates the potential impact of price fluctuation due to unforeseen market influences.

The FMPA members participating in Stanton 2 currently have generating resources with a net combined capability rating of approximately 772 MW (not including units which are currently on cold standby), most of which utilize gas and oil fuel. Total purchases including partial requirements resources total approximately 437 MW which is approximately 36 percent of total combined resources.

The proposed Stanton 2 Project would increase the ratio of non-gas and oil resources from 23 percent to approximately 31 percent of the total resources in 1997, thus reducing the members' sensitivity to oil and gas price fluctuations. (Williams/Guarriello)

KUA: Yes. Coal and nuclear capacity amounts to only 26 percent of KUA's capacity. The addition of Stanton 2 will increase the percentage of coal and nuclear capacity to 35 percent. (Funke)

SIERRA: No position.

STAFF: Yes, there definitely will be a better diversity of fuel mix for all the Petitioners' systems.

ISSUE 12: Does the proposed Stanton 2 provide for adequate fuel diversity for Peninsular Florida? (Stipulated)

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PETITIONERS: Yes. Stanton 2 will contribute to diversifying Peninsular Florida's fuel mix with additional coal fueled capacity relieving some of the dependency on natural gas and oil. As of January 1, 1990, only 27.2 percent of Peninsular Florida's generating capacity was coal fueled. Adding the 12.6 percent of nuclear capacity still results in less than 40 percent of Peninsular Florida's capacity being fueled with coal and nuclear. (Washburn, Rollins)

SIERRA: No position.

STAFF: Stanton 2 will not provide adequate fuel diversity for Peninsular Florida. However the addition of the 440 MW's of power will contribute towards the eventual fuel diversity of Peninsular Florida.

COST-EFFECTIVE ALTERNATIVES

ISSUE 13: Is the proposed Stanton 2 the appropriate generation alternative for supplying capacity to the Petitioners in 1997 given the uncertainty of load growth, fuel prices, technological developments, and economic conditions?

OUC: Yes. The installation of Stanton 2 in 1997 was evaluated under base case and high and low growth scenarios. Under all scenarios, Stanton 2 is the least cost alternative for OUC. The scenarios cover a very wide range of load growth, fuel prices, and economic conditions. Stanton 2 being the least cost alternative for all scenarios yields a high level of confidence that it is the appropriate generation alternative. (Washburn, Windisch, Rollins, Erickson, Stoddard)

In comparison with other developing technologies, such as integrated coal gasification (IGCC), Stanton 2 was shown to be lower in cost even using the low range of costs and the high range of efficiency for IGCC. This is a very conservative approach since normally high cost will correlate with high efficiency, not vice versa. The costs and performance for Stanton 2 are very well defined whereas the actual cost and performance for IGCC are uncertain. Stanton 2 being the least cost alternative even using the most favorable range in

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all aspects of the IGCC costs and characteristics yields a high level of confidence that it is the appropriate generation alternative.

FMPA: Yes. The FMPA participants are projected to need significant capacity additions in addition to Stanton 2; therefore, uncertainty of load growth is not a problem. Stanton 2 remained the least cost alternative under fuel price sensitivity analysis. Stanton 2 will be a replicate of Stanton 1 which is a proven performer. For systems the size of FMPA's participants, the risk of new technologies is too great for their consideration. Furthermore, no technological developments are foreseen that would be more economical or mitigate the need for Stanton 2. (Williams/Guarriello)

KUA: Yes. KUA's peak demand in 1990 was 200 MW and KUA's generating capacity is approximately 123 MW. KUA can utilize the capacity from Stanton 2 without any further growth or under adverse economic conditions. No technological developments are foreseen which could mitigate KUA's need for additional capacity. KUA needs base load capacity in its mix of generation in order to keep from being too dependent upon capacity which burns natural gas or oil. (Sharma, Funke)

SIERRA: No. Estimates of population and employment, which basically drive the forecasts, may be high. If the 1990's are like the 1980's, the population and employment forecasts would be appropriate. If they are more like the 1970's, the forecasts may not be appropriate. In the light of large uncertainties, prudence dictates.

STAFF: No position at this time.

ISSUE 14: Is the type, size and timing of the proposed Stanton 2 reasonably consistent with the capacity needs of Peninsular Florida?

PETITIONERS: Yes. The 1989 Planning Hearing selected combined cycle and combustion turbine units as the least cost alternatives for 1992 through 1994. Stanton 2 is lower in cost than the generic coal fueled unit assumed because it is the second unit at an

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existing site and because it is a replication of Stanton 1. If the Stanton 2 capital costs had been used in The Avoided Unit Study, the unit addition combination with Stanton 2 would have been the least cost option for 1993 and 1994. Subsequent to selecting combined cycles as the avoided units for the state, the Florida Public Service Commission selected a coal unit as the avoided unit. On these bases, Stanton 2 is certainly consistent with the type of capacity needed in Peninsular Florida. Peninsular Florida is projected to require the addition of more than 1700 MW of capacity by 1997 in addition to the capacity additions shown in the 1989 Planning Hearing Generation Expansion Plan to maintain a 0.1 day per year LOLP. Stanton 2 will fulfill a portion of this capacity need while providing fuel diversity from coal to Peninsular Florida. (Rollins, Williams, Speck)

SIERRA: No position.

STAFF: No position at this time.

ISSUE 15: Have the Petitioners provided sufficient information on the site, design, and engineering characteristics of Stanton 2 to enable the Commission to evaluate their proposal? (Stipulated)

PETITIONERS: Yes. Stanton Energy Center 2 will be a replicate and sister unit to Stanton Energy Center 1, which went into commercial operation on July 1, 1987. The Stanton Energy Center is located in Orange County approximately 14 miles east-southeast of the City of Orlando, Florida, on a site which is conceptually designed as a four-unit facility and certified for an ultimate capacity of approximately 2,000 MW.

As a replicate of Stanton 1, Stanton 2 performance characteristics are largely based on Stanton 1. Based on performance tests of Stanton 1, Stanton 2 is expected to have a full load heat rate of 9,740 Btu/Kwh.

Stanton 2 is being designed on the basis that it will achieve an equivalent availability of 83 percent with an equivalent forced outage rate of 4

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percent. For the first three years of operation, Stanton 1 achieved an availability of 84.54 percent with an equivalent forced outage rate of 4.76 percent. Stanton 2 will be a pulverized coal unit with a wet limestone scrubber for SO₂ control, an electrostatic precipitator for particulate control, and low NO_x burners for NO_x control. Stanton 2 will use treated sewage effluent in a natural draft cooling tower for cooling. (Washburn, Windisch)

SIERRA: No position.

STAFF: Yes, Stanton 2 will be a replicate and sister unit to Stanton 1, on an existing cite designed and certified for an ultimate capacity of approximately 2,000 MW.

ISSUE 16: Has the availability or purchased power from other utilities been adequately explored and evaluated? (Stipulated)

OUC: Yes. OUC together with FMPA and KUA in July 1990 issued a Joint Request for Purchase Power Proposals (RFP). The RFP solicited the interest of electric utilities to supply firm power for a minimum of 10 years. Electric generating utilities in Florida as well as generating utilities outside of Florida with only one intervening transmission system necessary to deliver the power to OUC were each sent copies of the RFP. The RFP requested that the respondents provide a minimum of 50 MW up to a maximum of 440 MW beginning January 1, 1997. None of the solicited utilities submitted proposals. (Washburn)

FMPA: Yes. See response for OUC. FMPA's All-Requirements participants, Fort Pierce Utilities Authority, City of Vero Beach, Utility Board of the City of Key West, and City of Starke all have partial requirements contracts with Florida Power & Light (FPL) or Florida Power Corporation (FPC). Stanton 2 was found to be a lower cost alternative than additional partial requirements purchases for these participants. (Williams/Guarriello)

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KUA: Yes. See response for OUC. KUA has a stratified partial requirements contract with FPC which with some constraints will allow KUA to purchase power requirements from FPC. KUA's participation in 16.9 MW of Stanton 2 was evaluated to be \$62 million lower in cost on a cumulative present worth basis through 2020 than the FPC stratified partial requirements. (Funke)

SIERRA: No position.

STAFF: Yes.

ISSUE 17: Has the availability of purchased power from qualifying facilities and non-utility generators been adequately explored and evaluated by the Petitioners?

PETITIONERS: Yes. As an alternative to the construction of Stanton 2, the Petitioners underwent an extensive bidding process open to qualifying facilities and independent power producers. In July 1990, a Joint Request for Power Supply Proposals (RFP) was issued. Sixty-four (64) companies requested a copy of the RFP and nineteen (19) of those submitted a notice of intent/respondent registration form. Only three proposals were received from the 19 notices of intent. The three respondents, the Enron Power Corporation, Inc., Citrus Energy Partners, L.P., and the PG&E-Bechtel Generation Company submitted bids totaling 1276 MW consisting of one coal fueled project and two natural gas fueled combined cycle projects. R.W. Beck and Associates was retained to independently evaluate the proposals. The lowest cost bid was 19.2 percent higher than Stanton 2 on a cumulative present worth basis. In addition, the Petitioners have developed and have available standard offer contracts for qualifying facilities. (Washburn, Rollins, Erickson, Williams/Guarriello, Funke)

SIERRA: No position.

STAFF: No position at this time.

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- ISSUE 18: Will the proposed Stanton 2 be the most cost-effective alternative available to the Petitioners?
- OUC: Yes. Stanton 2 is the least cost alternative available to OUC. Stanton 2 is 4.8 percent lower in cost on a cumulative present worth basis than the next lowest cost alternative which is a combined cycle. Stanton 2 also was 19.2 percent lower in cost than the least cost IPP bid received. In addition, Stanton 2 was lower in cost for all sensitivity analyses conducted. The economic evaluations for Stanton 2 included all additional demand-side management programs which were found to be cost-effective. (Washburn, Windisch, Rollins, Stoddard, Norland, Broehl)
- FMPA: Yes. Stanton 2 is the least cost alternative for FMPA's All-Requirements Project with a 0.3 percent cumulative present worth cost saving over the evaluation period from 1997 through 2021. Stanton 2 is also the least cost alternative for Fort Pierce, Vero Beach, Key West, and Starke with cumulative present worth cost savings ranging from 0.6 percent to 2.5 percent over the period from 1997 through 2021. Stanton 2 is also the least cost alternative for Lake Worth and Homestead with cumulative present worth savings of 1.4 and 1.6 percent respectively for the period 1997 through 2010. (Williams/Guarriello)
- KUA: Yes. The economic evaluation indicates that 16.9 MW of Stanton 2 participation is KUA's least cost option. The cumulative present worth savings over supplying this capacity with purchased power is \$62 million. The cumulative present worth savings over a combustion turbine addition is \$41 million. KUA could save \$30 million cumulative present worth compared to a hypothetical joint ownership of 16.9 MW of a combined cycle unit. (Funke)
- SIERRA: No. There are less costly conservation alternatives, as set forth in Tables 1 and 2 and the accompanying notes and narrative.
- STAFF: No position at this time.

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ISSUE 19: Will the proposed Stanton 2 be the most cost-effective alternative to Peninsula Florida?

PETITIONERS: Yes. During the 1989 Planning Hearing conducted under PSC Dockets 880004-EU, 890004-EU, and 900004-EU, The Avoided Unit Study determined that combined cycles and combustion turbines represented the least cost capacity addition alternatives for Peninsular Florida. If the lower capital cost of Stanton 2 compared to the generic coal units is used, combinations including Stanton 2 would be the least cost alternative for Peninsular Florida. On the basis of this evaluation, it can be concluded that Stanton 2 is the most cost-effective alternative for Peninsular Florida. (Windisch, Rollins, Stoddard)

SIERRA: No, for reasons given re issues 18 and 20.

STAFF: No position at this time.

CONSERVATION

ISSUE 20: Are there sufficient conservation or other non-generating alternatives reasonably available to the Petitioners to mitigate the need for the proposed Stanton 2?

OUC: No. OUC has been actively analyzing, developing, and promoting conservation and demand-side management programs since 1973. We were required by FEECA in 1981 and 1990 to offer conservation and demand-side management programs to reduce oil consumption and weather sensitive peak demands. Two new programs involving conversion of resistance heating to heat pumps and efficient commercial lighting identified in the evaluations will be enhancements to the existing approved FEECA programs and will be implemented in 1993. The estimated savings in winter peak demand of all these programs by January 1997 (44 MW) are not sufficient to offset the need for Stanton 2. (Rollins, Erickson, Norland, Broehl)

FMPA: No. FMPA Stanton 2 participants and the All-Requirements participants are actively promoting energy conservation and are involved in a wide

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range of conservation programs. These ongoing programs, which are projected to result in a reduction in overall demand of 27 MW through the year 1997, are taken into account in the load forecasts. With these conservation efforts, these potential participants in the proposed Stanton 2 Project and All-Requirements Project are still projected to be capacity deficient prior to 1997. (Williams/Guarriello)

KUA: No. KUA is projected to require 299 MW of capacity by 1997 and currently owns only 123 MW of capacity. This estimate includes the effect of their conservation programs, and the effect of a proposed load management program. No other non-generating alternatives have been identified, and even if they were, it is very unlikely that they could account for the 176 MW of capacity which will be required by 1997. (Sharma, Funke)

SIERRA: Yes. There are sufficient conservation, load management and cogeneration alternatives to postpone the need for Stanton 2 for five years, considering the OUC service area. The same is the case for the four FMPA cities with the greatest reliance on Stanton 2. KUA has generating needs well beyond its share of Stanton 2, even though these can be reduced with additional conservation measures. (Blackburn)

STAFF: No position at this time.

ASSOCIATED FACILITIES

ISSUE 21: What transmission facilities are required to tie the proposed Stanton 2 into the electric grid? (Stipulated)

PETITIONERS: In addition to the four existing 230 kv transmission lines that connect the Stanton Substation to the grid, one new 230 kv transmission line segment will be required from the Stanton Substation connecting to a 230 kv transmission line to the Taft Substation which is being installed on existing transmission towers as part of a relocation project associated with the expansion of the Orlando International Airport. The new 230 kv

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transmission line segment will be constructed in the previously certified railroad corridor. (Erickson)

SIERRA: No position.

STAFF: One 230 KV transmission line segment approximately 14 miles in length will be required as a part of the Stanton 2 construction.

ISSUE 22: What fuel delivery facilities are required to provide fuel to Stanton 2? (Stipulated)

PETITIONERS: No additional facilities will be required to deliver fuel to Stanton 2 other than the purchase of two additional unit train sets of coal cars which are included in the capital cost estimate. All necessary facilities were installed with Stanton 1. Stanton Energy Center is served by an 18 mile rail spur originating from the CSX Transportation Railroad mainline approximately one mile west of the Orlando International Airport. (Windisch)

SIERRA: No position.

STAFF: Two additional unit train sets of coal cars will be required to provide fuel to Stanton 2.

OTHER

ISSUE 23: Have the reasonably anticipated costs to the Petitioners of environmental compliance of the proposed Stanton 2 been properly considered by the Petitioners in the unit selection process?

PETITIONERS: Yes. The capital and operating costs presented for Stanton 2 and used in the evaluations include the reasonably anticipated costs of environmental compliance. Based on these costs, Stanton 2 was selected as the least cost alternative. Costs are included for a wet limestone scrubber, electrostatic precipitator, low NO_x burners, scrubber waste and ash disposal, and brine concentrators for waste water disposal to eliminate off-site waste water discharges. In addition,

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Stanton 2 was the least cost alternative for the Petitioners including a \$1500/ton cost for SO₂ allowances. (Windisch, Rollins, Williams/Guarriello, Funke)

SIERRA:

No. Although current requirements with respect to SO_x, NO_x and particulate emissions have been provided for, there are additional environmental concerns for which additional costs may now be reasonably expected.

One may reasonably expect mounting concern with CO₂ emissions and the related "greenhouse effect" to lead to a carbon tax or other restrictions. This would fall disproportionately on coal. Heavy metal emissions, not now regulated, are the subject of increasing concerns which may reasonably be expected to result in additional costs.

STAFF:

Without question all of the reasonable anticipated costs have been considered. By adding the \$1500 per ton of purchasing allowances they won't need, they have been very conservative in their analysis.

ISSUE 24:

How should the opportunity cost of Clean Air Act SO₂ emission allowances be treated when evaluating the total in-service cost of the proposed Stanton 2? (Stipulated)

OUC:

The magnitude of the opportunity cost of Clean Air Act SO₂ emission allowances is speculative at best. Because of their speculative nature, it is adequate to only show that the utility has enough allowances available to operate its system. OUC will have adequate allowances available to operate its system through 2020. As a worst case analysis, the EPA allowance price of \$1500 per allowance could be used to evaluate the addition of Stanton 2. Including the \$1500 per allowance in the cost comparison results in Stanton 2 being lower in cost than the next lowest cost alternative by 4.4 percent. (Rollins)

FMPA:

The opportunity cost of Clean Air Act SO₂ emission allowances should be included in evaluations at EPA's \$1500 cost per allowance. This has been done in FMPA's evaluations. (Williams/Guarriello)

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KUA: Since the opportunity cost of the 1990 Clean Air Act SO₂ allowances are unknown at this time, they should not be explicitly included in economic evaluations of Stanton 2 since KUA has adequate allowances to cover the operation of Stanton 2. Even including the opportunity cost at EPA's price of \$1500/ton, Stanton 2 remains KUA's least cost alternative. (Funke)

SIERRA: No position.

STAFF: The utility has sufficient allowances available to operate Stanton 2. The only reason to include the needed allowances at \$1500 per ton would be to show a worst case scenario to prove that the decision to build Stanton 2 was cost-effective.

ISSUE 25: Were the opportunity cost of Clean Air Act SO₂ emission allowances properly treated in the Petitioners evaluation of the total in-service cost of the proposed Stanton 2? (Stipulated)

PETITIONERS: Yes. The Petitioners have adequate allowances for the operation of Stanton 2. Stanton 2 is the least cost alternative even when the EPA's \$1500 per allowance cost is included in the evaluations. (Rollins, Williams/Guarriello, Funke)

SIERRA: No position.

STAFF: Yes.

ULTIMATE ISSUE

ISSUE 26: Based on the resolution of the previous factual and legal issues, is the record supported by a preponderance of the evidence that a finding of need for Stanton 2 exists?

PETITIONERS: Yes. Stanton 2 will provide for electric system reliability and integrity. Stanton 2 will provide adequate electricity at a reasonable cost. Stanton 2 is the least cost alternative. There are no

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conservation measures reasonably available which would mitigate the need for Stanton 2. (Washburn, Windisch, Rollins, Erickson, Stoddard, Norland, Broehl, Williams/Guarriello, Sharma, Funke, Speck)

SIERRA: No, for reasons given with respect to issues 2, 3, 4, 7, 9, 13, 17, 18, 19, 20, and 23.

STAFF: No position at this time.

E. STIPULATIONS

The parties stipulate that the following witnesses are experts in the designated areas and are capable of rendering expert opinions in their areas of expertise. Known stipulated issues are identified in the issue.

<u>Witness</u>	<u>Areas of Expertise</u>
Thomas E. Washburn O&M costs. Power sales.	Availability of fuels.
Earl C. Windisch	Power plant and associated facility design, cost, schedule, and engineering characteristics.
Myron R. Rollins Power supply planning. Evaluation criteria. Economic analysis.	Fuel price projections.
Gerald F. Erickson Load forecasting. Conservation. Financial analysis. Standard offer contracts.	Transmission system planning.
Larry E. Stoddard	Advanced technologies.
Douglas L. Norland	Demand-side planning.
John H. Broehl	Demand-side planning.

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Robert C. Williams Evaluation criteria. Load forecasting. Conservation and demand-side planning. Economic analysis. Transmission system planning.	Power supply planning.
Nicholas P. Guarriello Evaluation criteria. Load forecasting. Conservation and demand-side planning. Economic analysis.	Power supply planning.
Ludwig F. Funke Evaluation criteria. Load forecasting. Conservation and demand-side planning. Reliability criteria. Economic analysis. Financial analysis. Transmission system planning.	Power supply planning.
Shahla S. Speck	Power supply planning.

F. PENDING MOTIONS

None.

Based on the foregoing, it is

ORDERED by the Florida Public Service Commission that these proceedings shall be governed by this order unless modified by the Commission.

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By ORDER of Commissioner Michael McK. Wilson, as Prehearing Officer, this 13th day of JUNE, 1991.

George Kalidis
for commissioner Wilson.

MICHAEL MCK. WILSON, Commissioner
and Prehearing Officer

(S E A L)

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