

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Petition of Seminole Electric)	DOCKET NO. 880309-EC
Cooperative, Inc. to determine need)	ORDER NO. 20930
for electrical power plant.)	ISSUED: 3-23-89
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The following Commissioners participated in the disposition of this matter:

MICHAEL MCK. WILSON, Chairman
 THOMAS M. BEARD
 GERALD L. GUNTER
 JOHN T. HERNDON

INITIAL ORDER ON NEED DETERMINATION

BY THE COMMISSION:

On February 23, 1988, Seminole Electric Cooperative, Inc. (SEC) filed a petition to determine its need for two 220 MW class combined cycle generating units with an in-service date of January 1, 1993. Along with its petition, SEC submitted a Need Determination Study and Need Determination Study Appendices (Exhibits 1 and 2, respectively). These studies were intended to meet the requirements of Rule 25-22.081, Florida Administrative Code, our rule outlining the information required for this Commission to make a determination of need pursuant to the Florida Electrical Power Plant Siting Act (Siting Act), Sections 403.501-.517, Florida Statutes.

After reviewing these documents, Staff concluded that the petition filed by SEC did not meet the requirements of Rules 25-22.081(2), (4), and (6). SEC was given an opportunity to respond to Staff's written objections to its need determination petition. Based on a review of these documents, we found that SEC's petition did not comply with those sections of the rule and that it was unable to meet the statutory requirements of Sections 403.519 and 366.80-.85, Florida Statutes, until several events occurred. Using the earliest date on which all of these events could be completed and evaluated, we set a hearing date of December 7-9, 1988. Order No. 19468, issued on June 8, 1988, at 7-9.

SEC originally filed direct testimony in support of its petition on April 6, 1988 and rebuttal testimony on May 11, 1988. This was replaced by revised direct testimony filed on October 26, 1988. This October testimony completely superseded SEC's earlier testimony and formed the basis of SEC's testimony at trial. Staff filed the direct testimony of Wayne Makin and Theresa Walsh on April 6 as well. This testimony was no longer relevant after our ruling in June and was withdrawn. SEC filed its post-hearing brief on January 10, 1989, addressing all issues raised in the Prehearing Order in this docket, Order No. 20305, issued on November 15, 1988.

As part of its evaluation of the most cost-effective means of supplying its capacity needs in 1993, SEC issued a request for proposals (RFP) for capacity from qualifying facilities and independent power producers. At the December hearing, SEC indicated that it had compiled a "short list" of three bidders,

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two of whom, with further negotiation of terms, might provide a more economical means of supplying SEC with its needed capacity than construction of its proposed units. Based on that representation, we requested that our Staff develop a procedure for resolution of this docket which would allow SEC to go forward with the certification of its proposed plants while not impeding SEC's negotiations with the short list of bidders.

The record before us today is fully developed on both SEC's need for 450 MW of capacity in 1993 and the parameters which are attached to its own construction of two 220 MW class combined cycle generating units at its Polk/Hardee county location. That being the case, our Staff has suggested that this docket be bifurcated and two sets of findings made: an initial order which deals with the need of SEC for 450 MW of capacity in 1993 and a second order, the final order in the docket, which deals with the most economical means of satisfying that need if one exists. These two orders taken together would satisfy the reporting requirements of Section 403.507(b), Florida Statutes. We adopt our Staff's approach with the following modification: because we will hear no additional testimony on SEC's own construction alternative, we can find that certain requirements of the Siting Act have been met, absent the RFP process.

SEC is a generation and transmission cooperative serving its member systems from 1214 MW of its own capacity: two 600 MW coal units and a 14 MW share of Florida Power Corporation's (FPC) Crystal River 3. All load above that level is served by partial requirements purchases from Florida Power and Light Company (FPL) and FPC. With the exception of a 50 MW purchase from the City of Gainesville, SEC has been unable to secure reserve capacity contracts for its 1214 MW from other generating utilities beyond 1992.

Thus, unlike other need determination cases which have come before this Commission, SEC is not proposing to build capacity to serve its anticipated load growth. SEC's projected load growth can, for at least the next seven years, continue to be satisfactorily served by FPL and FPC through partial requirements contracts. SEC is instead seeking to build capacity which will provide the necessary reserve margins on its system to "back up" its own generation. For that reason, although we find that SEC's load forecasts are adequate for planning purposes, they do not support the need for the capacity addition requested in this docket.

In order to identify the type and amount of capacity which will allow it to maintain its own system reliability and integrity, SEC has used an Expected Unserved Energy (EUE) standard of 1%. EUE is particularly appropriate in this application because it provides a direct expression of the amount of member load which will not be served by SEC's own generation as a result of capacity shortfalls. Without the addition of 450 MW of capacity in 1993, SEC will fall below the 1% EUE target. At a level below 1% EUE SEC would be unable to meet its own system requirements should one or both of its coal units fail. Maintenance of this amount of capacity is also necessary for SEC to meet the level of reserves required by the terms of its emergency interchange agreements with the other

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Florida utilities with whom it is interconnected. Based on this testimony, we find that SEC has proven a need for 450 MW of reserve capacity in 1993.

Having determined that it needed 450 MW of reserve capacity in 1993, SEC then used the PROMOD and PROSCREEN models to evaluate the least-cost construction alternative to satisfy that need. The SEC screened 75 technologies and performed detailed cost analyses over a 30-year period on combinations of three generating technologies: combustion turbine, combined cycle and pulverized coal units. Essentially, the PROMOD and PROSCREEN models compare the present worth of revenue requirements (PWRR) of different options which meet the 1% EUE reliability standard. PWRR measures the capital costs, carrying costs, operation and maintenance costs and fuel costs associated with each unit or combination of units over the study period.

SEC developed its own fuel forecasts and capital carrying costs for input into the PROSCREEN and PROMOD models. The capital costs used as inputs into the models were either taken directly from the Electric Power Research Institute's (EPRI) Technical Assessment Guide (TAG) or were based on SEC's own historical experience or the cost projections of its consulting engineers. Operation characteristics of the various units were taken from the EPRI TAG document for all units.

Based on the PROMOD and PROSCREEN models using the above data, two 220 MW class combined cycle units fueled with natural gas and distillate oil on a 80%/20% basis were found to have the lowest PWRR over the 20 year study horizon as well as the 30-year life cycle of the plant. The total PWRR over the study horizon associated with each of the generating alternatives which meet the 1% EUE reliability criterium is as follows:

Two combined cycle 220 MW units*	\$ 3300 million
Three 75 MW combustion turbines, one combined cycle 220 MW unit	\$ 3326 million
Six 75 MW combustion turbines	\$ 3388 million
Southern Company UPS 450 MW	\$ 3363 million
500 MW steam coal	\$ 3542 million
Two 220 MW combined cycle with coal gasifier	\$ 3613 million

*These figures are based on the use of an 80/20% split of natural gas and distillate fuel for all combined cycle and combustion turbine unit combinations.

The figures developed above are the result from SEC's "base case" assumptions. The base case data is data which SEC considers to be the most likely scenario. SEC also did sensitivity studies which used high and low forecasts for fuel prices, the effect of broker sales, high and low load forecasts, high and low capital costs, and high and low interest rates in the computer models. In each instance, the proposed combined cycle units were found to be the most cost-effective on a PWRR basis. Additionally, SEC considered "strategic" factors: operating considerations (SEC's need for capacity which could be brought on line quickly), construction flexibility (combined cycle units are modular, can be constructed within a two-year period, and can be converted

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via the addition of a gasifier to burn coal as well as oil and gas) and impact on SEC's ratepayers (addition of a coal unit would initially have a rate impact of 1.0 cents/KWH more than SEC's proposed units; initially adding coal gasification capability to the combined cycle units would have a rate impact of 1.3 cents/KWH more than SEC's proposed units). These strategic factors also support the selection of two 220 MW class combined cycle units as SEC's construction option.

The proposed combined cycle units will be fueled by both natural gas and distillate oil. SEC testified that natural gas would be available on an interruptible basis from the Phase II expansion of the Florida Gas Transmission Company (FGT) pipeline throughout the proposed plant's expected life at least 80 percent of the time. This gas would be transported to the Polk/Hardee site by a service lateral from the FGT pipeline of approximately 34 miles. The site is also capable of handling coal should the addition of a coal gasifier to the site become economically feasible in the future.

In addition to the supply side options discussed above, SEC has also evaluated the ability of conservation or other nongenerating alternatives to mitigate the need for its proposed plant. The forecasts used in the computer model which identified a need for 450 MW of capacity in 1993 included the expected affects of SEC's conservation and load management programs. Conservation decreases primarily weather-sensitive peak period loads. In SEC's case, peak loads are served by its partial requirements contracts. Because the proposed 450 MW is not needed to serve peak period load, but rather to provide reserve capacity should one or all of SEC's own units fail, one would expect that increases in conservation would not affect the need for the capacity. This assumption is borne out by the sensitivity studies conducted by SEC. These studies showed that even when conservation and load management affects were projected at roughly double that projected for Peninsular Florida in the 1986 Planning Hearing, 450 MW of capacity would still be needed in 1993 to maintain a 1% EUE.

Based on the above, we find that SEC has proven that of all of the supply side and demand side options considered, 440 MW of combined cycle capacity constructed at its proposed Polk/Hardee county site would provide SEC with adequate electricity at at reasonable cost. We also find that of the alternatives fully developed in this proceeding, SEC has proven that this option is the most cost-effective. We note again, however, that the final resolution of these issues cannot be made until the record is developed on the alternative or alternatives which are the result of SEC's negotiations with its RFP bidders. We expect that a detailed analysis of these RFP alternatives will be presented at the continuation of this hearing which is currently scheduled for June 14, 1989. Our intention is that this order will establish SEC's construction of two 220 MW combined cycle units as the benchmark against which all RFP bids are measured.

Therefore, it is

ORDERED By the Florida Public Service Commission that Seminole Electric Cooperative, Inc. has proven a need for 450 MW of capacity in 1993. It is further

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ORDERED that SEC has proven that of the demand side and supply side options fully developed in the record before us, this need is best and most economically provided by SEC's construction of two 220 MW combined cycle units located at its Polk/Hardee County site. It is further

ORDERED that the final resolution of the alternative which is most cost-effective is deferred until the alternative/s which are the result of negotiations with SEC's RFP bidders are known and presented to this Commission during a subsequent noticed public hearing.

BY ORDER of the Florida Public Service Commission,
this 23rd. day of MARCH, 1989.


STEVE TRIBBLE, Director
Division of Records and Reporting

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