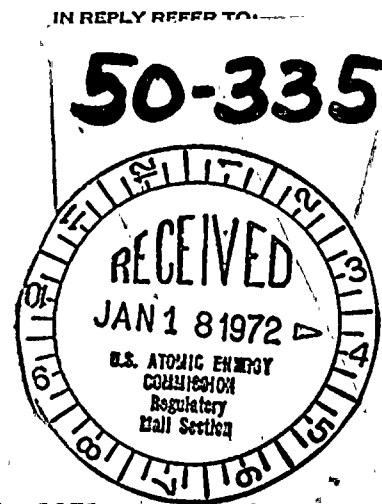


FEDERAL POWER COMMISSION
WASHINGTON, D.C. 20426

January 13, 1972

Regulatory File Cy.

Mr. Roger S. Boyd
Assistant Director for
Boiling Water Reactors
Division of Reactor Licensing
Atomic Energy Commission
Washington, D. C. 20545

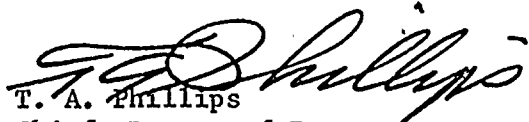


Dear Mr. Boyd:

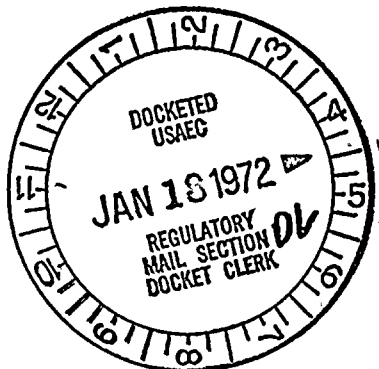
This is in response to your letter of December 15, 1971, requesting the comments of the Federal Power Commission on the possible effects of delays due to suspension of certain construction activities associated with the Florida Power and Light Company's Hutchinson Island No. 1 steam electric generating unit.

The enclosed staff report, prepared by the Commission's Bureau of Power, presents specific information in relation to the projected load and power supply conditions for the Applicant and throughout peninsular Florida. The report illustrates the need for the unit at the summer and winter peak load periods following its currently scheduled commercial service date of May 1974.

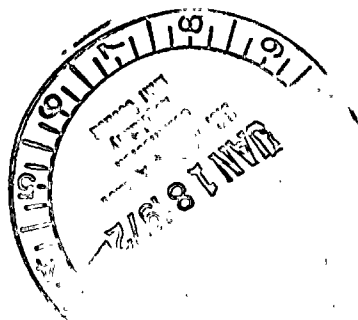
Very truly yours,


T. A. Phillips
Chief, Bureau of Power

Enclosure
Report on Hutchinson Island Nuclear Plant



LB



FEDERAL POWER COMMISSION
Bureau of PowerReport on the Hutchinson Island Nuclear Plant
Environmental StatementReceived w/ltir Dated 1-13-72

In his letter dated December 15, 1971, the Assistant Director for Boiling Water Reactors, Division of Reactor Licensing, U. S. Atomic Energy Commission, requested the comments of the Federal Power Commission on the need for power to be supplied by the 250 megawatt Hutchinson Island No. 1 nuclear electric generating unit, and the effects of possible delays due to suspension of certain construction activities associated with the project.

We understand that the environmental aspects of the Hutchinson Island plant are currently undergoing supplemental analysis and that the Atomic Energy Commission wishes to consider such factors as: the effect of delays in facility operation upon the public interest, particularly "the power needs to be served by the facility; the availability of alternative sources, if any, to meet those demands on a timely basis; and delay costs to the licensee and to the consumer." Thus our comments are directed primarily to the need for Hutchinson Island Unit No. 1 as concerns the adequacy and reliability of electric power on the Applicant's system and in the State of Florida. This is in accordance with the National Environmental Policy Act of 1969, and the Guidelines of the President's Council on Environmental Quality dated April 23, 1971.

The Hutchinson Island Unit No. 1 is a pressurized water nuclear reactor presently under construction by Florida Power and Light Company. The unit is located on Hutchinson Island, on the east coast of Florida in St. Lucie County. The Applicant states that the unit is scheduled for full power operation in May 1974. It is one of four large nuclear units scheduled for service in the State of Florida by the summer of 1974.

A member of the Southeastern Electric Reliability Council (SERC), Florida Power and Light Company is the largest system operating in peninsular Florida. It serves approximately 50 percent of the loads served by the Florida interconnected systems. According to the Applicant's Annual Power System Statement to the Commission, its system normally experiences succeeding summer and winter peaks such that there is only negligible seasonal diversity. In 1970, the system experienced its maximum demand of 5,001 megawatts on September 10, 1970. The Applicant forecasts a 1974 summer peak load of 8,100 megawatts.

This report of the Bureau of Power considers primarily the needs for Hutchinson Island Unit No. 1 to meet the 1974 summer peak load and the 1974-75 winter peak load. In preparing the report, the staff of the Bureau of Power has considered the Applicant's Environmental Statement, Hutchinson Island Unit No. 1; reports made in response to the Commission's April 1970 Statement of Policy on Adequacy and Reliability of Electric Service (Order No. 383-2), and the Bureau of Power staff's independent analysis of these documents together with related information from other FPC reports.



Need for the Facilities

The Applicant is one of seven^{1/} interconnected systems operating throughout the State of Florida belonging to the Southeastern Electric Reliability Council. The attached tabulation considers the load to be served by the Applicant and the other Florida interconnected systems as a whole and the relationship of the Hutchinson Island Unit No. 1 to the expected reserve margins at the time of the 1974 summer and 1974-75 winter peaks. These are the anticipated initial service periods of the new units, but the life of these units is expected to be some 35 years, and they are expected to constitute a portion of the Applicant's total generating capacity throughout that period. Therefore, they will be depended upon to supply power to meet future demands over a period of many years beyond the initial service needs discussed in this report. Load growth in the area has for the last several years averaged about 11 percent per year and this trend is expected to continue.

In addition to the Hutchinson Island Unit No. 1, the Applicant has two nuclear units expected for full power operation in 1972 at its Turkey Point Plant. The units have an aggregate summer capability of 1,456 megawatts. Also included in the Applicant's capacity additions schedule are two fossil-fueled Sanford units which total 800 megawatts. Other Florida Systems are including five^{2/} new fossil steam units and one^{3/} nuclear unit aggregating approximately 3,500 megawatts in their forecasted net capability in the evaluation period. At least one of the above units (Turkey Point No. 3) has already experienced delays, and there is no absolute certainty that currently forecasted operating dates will be achieved for the others.

The Applicant states for 1971 the maximum peak load experienced on its system was 5,635 megawatts while actual generating capacity was 6,013 megawatts. This resulted in an actual reserve of 378 megawatts for a margin of 6.7 percent of peak load. The Applicant further states it anticipates a peak load for the summer of 1974 of 8,100 megawatts while generating capacity without Hutchinson Island Unit No. 1 will be 8,713 megawatts. This will provide a reserve of 613 megawatts or a margin of 7.6 percent. With Hutchinson Island Unit No. 1 available, the reserve margin will be 18.1 percent. If the unit is not available for the 1974-75 winter peak, staff analysis indicates the Applicant will not have sufficient capacity of its own to meet the forecast peak of 9,020 megawatts. The generating

^{1/} The other systems are Florida Power Corporation, Tampa Electric Company, Orlando Utilities Commission, Jacksonville Electric Authority, City of Tallahassee and the City of Lakeland.

^{2/} For 1973 Summer Big Bend No. 2 (437 MW) and Indian River No. 3 (325 MW). For 1974 Summer Northside No. 3 (550 MW), Anclote No. 1 (515 MW), and Port Manatee No. 1 (775 MW).

^{3/} For 1973 Summer Crystal River No. 3 (855 MW).

FLORIDA POWER AND LIGHT COMPANY RESERVE MARGIN 1/

	<u>1974</u> <u>Summer Peak</u>	<u>1974-75</u> <u>Winter Peak</u>
<u>Without Hutchinson Unit No. 1 (850 MW)</u>		
Net Capability - megawatts	8713	8995 ^{2/}
Load - megawatts	8100	9020 ^{4/}
Reserve margin - megawatts	613	(25)
Reserve margin - Percent of Load	7.6	(.2)
 <u>With Hutchinson Unit No. 1</u>		
Net Capability - megawatts	9563	9885 ^{2/}
Load - megawatts	8100	9020 ^{4/}
Reserve margin - megawatts	1463	865
Reserve margin - Percent of Load	18.1	9.6
Percent of Reserve Represented by the Unit	58.1	102.9

FLORIDA SYSTEMS RESERVE MARGIN

<u>Without Hutchinson Unit No. 1</u>		
Net Capability - megawatts	18130 ^{2/3/}	18650 ^{2/3/}
Load - megawatts	14630 ^{2/}	15410 ^{2/}
Reserve margin - megawatts	3500	3240
Reserve margin - Percent of Load	23.9	21.0
 <u>With Hutchinson Unit No. 1</u>		
Net Capability - megawatts	18980 ^{2/3/}	19540 ^{2/3/}
Load - megawatts	14630 ^{2/}	15410 ^{2/}
Reserve margin - megawatts	4350	4130
Reserve margin - Percent of Load	29.7	26.8
Percent of Reserve Represented by the Unit	19.5	21.5

() Indicates a deficiency

- 1/ Unless otherwise specified, the data was obtained from the Applicant's Environmental Statement of Hutchinson Island Unit No. 1.
- 2/ Based upon data reported in the Southeastern Electric Reliability Council's April 1971 response to the Commission (Order No. 383-2).
- 3/ Includes as in service for this and subsequent peak periods: Turkey Point No. 3, Turkey Point No. 4 and Crystal River No. 3 nuclear unit.
- 4/ Data as reported as of December 31, 1971, in Florida Power and Light Company's Annual Power System Statement to the Commission.

capacity would be 8,995 megawatts or 25 megawatts less than the projected peak demand.

The reserve margins indicated in the foregoing tabulations and discussion are gross in that they include allowances for scheduled maintenance, forced outages, errors in load forecasting, and spinning reserve requirements. An important consideration with respect to reserve capacity margins is the recent experience with new large generating units which indicates frequent forced outages of such units during the initial months of their operation are to be expected.

Applying the same type of analysis to the forecasted peak load of peninsular Florida as to the Florida Power and Light Company results in a reserve margin for the 1974 summer of 29.7 percent and 23.9 percent respectively, with and without the Hutchinson Island nuclear unit. However, peninsular Florida is dependent upon almost 3,200 megawatts of nuclear capacity, including the Hutchinson Island No. 1 Unit, being in timely service over this period to meet the levels of reserve margin shown. This 3,200 megawatts represents approximately 73 percent of the total reserve margin shown for 1974 summer, and the delay of any of these units results in a significant deterioration of the reserve margins shown. For the 1974-75 winter situation, peninsular Florida reserve margins are projected to be 26.8 and 21.0 percent respectively, with and without the Hutchinson Island Unit.

Transmission Facilities

No transmission lines have been constructed linking the Hutchinson Island Nuclear Plant with peninsular Florida's bulk power transmission network. The Applicant states right-of-way clearing and construction for the two proposed 240-kilovolt lines from the plant to the St. Lucie substation which is approximately 13 miles away are scheduled to begin in July 1972. Therefore, a few months suspension at this time would not appear to be critical unless it extends to the point that the unit cannot be made available for service by the summer of 1974. It has been estimated that 8 months may be required to complete the environmental review. Much more time may be required, however, to complete the line work if any major revisions in line design or routing are necessitated by the review.

Alternates for the Proposed Facilities

Within the time available, there are no known alternate additions of base load generating capacity which could be substituted for the Hutchinson Island No. 1 unit. Fossil fuel-fired plants require an estimated 5 years to complete and an alternative nuclear plant would require an even longer time. Gas turbine peaking units could be installed by 1974 but are not a practical alternative for a base load plant such as Hutchinson Island because such units would be required to operate for more hours than would normally be the case for gas turbines intended for peaking capacity. This would

result in higher maintenance and production costs which would ultimately be passed on to the consumer. Moreover, the Company already has a relatively large amount of gas turbine capacity which was necessitated by inability to meet schedules for new base load facilities over the last several years. The alternative of purchasing power from other in-state systems does not appear feasible because of the load requirements already existing or projected in those areas. There is little expectation of firm power being available from outside of Florida even if sufficient transmission capacity were available which is not the case at present. There are no known practical alternatives to the high-voltage transmission lines expected to be used to connect the Hutchinson Island Plant to the remainder of the Florida Power and Light Company's system.

Conclusions

The staff considers that the 850 megawatts of capacity represented by the Hutchinson Island Unit No. 1 is needed to assist in meeting the Applicant's 1974 summer and 1974-75 winter peaks and provide reasonable reserve margins for adequacy and reliability of electric service in peninsular Florida. Prudent and responsible operations necessarily include provisions for loss of capacity due to forced outages of generating capacity, occurrence of loads higher than those forecast, operating margins required to fulfill obligations to participants in the interconnected systems, and operating margins to provide for flexibility in the allocation of load to generating resources because of abnormal bulk power system conditions.

Since the transmission connections are a necessary part of the project and the Hutchinson Island Unit cannot be used without them, it is important that line construction delays not be extended to the point that the generating unit is unavailable for service to assist in meeting 1974 summer loads.

The Applicant estimates by January 31, 1972 expenditures on the plant will total \$121 million, and that the project investment will continue to rise steadily to about \$197 million by the end of 1972. A twelve month suspension of the unit is estimated to cost approximately \$16.3 million for demobilization and remobilization, mothballing and de-mothballing of material and equipment, and costs during shutdown. Added job costs until completion are estimated to total \$2.6 million for a 12-month delay. The Applicant states that replacement power costs for using gas turbines in lieu of the plant is \$36.12 million which includes \$7.32 million for financing the turbines and a \$28.8 million incremental cost of fuel oil over the cost of nuclear fuel. These costs must ultimately be borne by the consumer. These cost estimates are within the general ranges of costs reported to the Federal Power Commission by others for comparable situations. On this basis, they are considered to be reasonable.


T. A. Phillips

12/30/71

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