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DOCKET NUMBER: 50-389

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TO: W.H. REGAN,JR.

FROM: FLORDIA POWER & LIGHT CO.
MIAMI, FLORDIA.
R.E. UHRIG

DATE OF DOCUMENT: 11-22-76

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LTR. RE OUR 11-9-76 REQUEST...TRANS THE FOLLOWING....

PLANT NAME: ST. LUCIE # 2

ENCLOSURE

ADDITIONAL INFORMATION PERTAINING TO THE POWER REEVALUATION REQUESTED IN ITEMS 1THROUGH 8, IN ITEMS2 IS ATTACHED REVISED TABLES 8.1 THROUGH 8.7.......

(1 SIGNED CY. RECEIVED)
(12 PAGES)

ACKNOWLEDGED

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SAB 12-1-76

FOR ACTION/INFORMATION

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PROJECT MANAGER:		/ PROJECT MANAGER:	LYNCH
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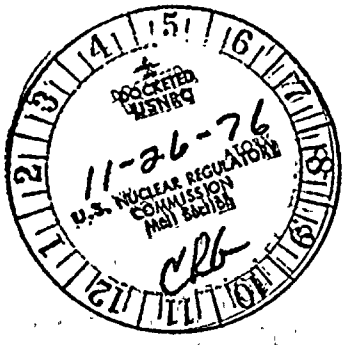

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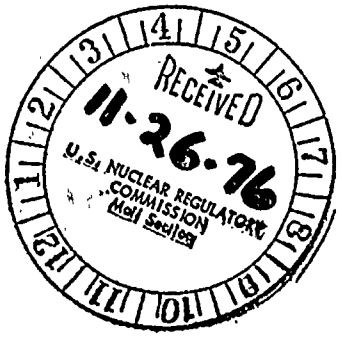
FPL
FLORIDA POWER & LIGHT COMPANY

November 22, 1976
L-76-400



Office of Nuclear Reactor Regulation
Attn: William H. Regan, Jr., Chief
Environmental Projects, Branch #3
Division of Site Safety and
Environmental Analysis
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dear Mr. Regan:

Re: Request for Additional Information
St. Lucie Unit No. 2 (Docket No. 50-389)

Your letter of November 9, 1976, requested that Florida Power & Light Company provide additional information for the staff's need for power reevaluation. The information requested in items 1,3,4,5,6,7, and 8, is found in Attachment A. The information requested in item 2 is attached as revised Tables 8.1, 8.2, 8.3, 8.5, 8.6, and 8.7.

Yours very truly,

Robert E. Uhrig
Vice President

REU/LLL/hlc
Attachment

cc: Harold F. Reis, Esq.

11996

ATTACHMENT A

1. Current and expected feasibility of importing large, continuous blocks of power from other utilities.

   Purchases of firm or unit power are being considered, although Florida Power & Light Company (FPL) has not made use of these alternatives in the past. Purchases and sales of power are useful where large amounts can be purchased at prices lower than that generated by the most attractive alternative. Such power supply has not been in the past, and is not now, and is not expected by FPL to be available during the projected time frame of St. Lucie Unit 2.

2. An update of Tables 8.1, 8.2, 8.3, 8.5, 8.6, and 8.7 of the FES, including CY 1976 to date. (Attached)

3. Explanations of reasons for changes in the general trends of the data in those tables.

   As a result of the "Energy Crisis" of late 1973, customer consumption deviated from the previous forecast of May 1973. In May 1974, a new peak load forecast was made lowering the 1973-1981 growth rate from 11.3% to 10.1%. This new forecast took into account patriotic appeals by government officials to conserve energy, decreased tourism, inflation, and concern about the threat of a serious recession. It was originally anticipated that the basic long-term growth factors (population, customers, price, general economic conditions, etc.) would still be present once the recession which the United States was undergoing was overcome. As a result, the load forecast, as mentioned, was lowered only to 10.1 percent. Generation plans were developed to include a band of growth rates ranging from 7 to 11 percent.

   The 1974 summer peak of 7235 MW represented only a 4.9% increase over the 1973 summer peak - a marked departure from the historical trend and from the forecast. By the second quarter of 1975, it had become apparent that several important economic and demographic changes had occurred which would materially affect our forecast of May 1974. Surplus housing had caused a reduction in residential construction and kept unemployment in Florida above the national average. Real per capita income which steadily rose in Florida from 1966 to 1973, had decreased 3.3% as a result of record inflation rates. Based on economic information that was available at that time, in June of 1975, FPL updated its peak load forecast to reflect an average annual growth rate of 7.2% from 1974 through 1981.

One of the key inputs in the development of the 7.2% peak load growth forecast was the anticipated economic recovery starting in late 1975 or in early 1976, which was being forecasted by most economists. This, however, has occurred slower than expected in both the United States and Florida.

In 1975, the peak load of 7076 MW represented a 2.2% decrease from the previous year. This decline was, in part, due to a mild summer. However, this lag in economic recovery was still affecting our load growth.

After quantifying the effects of the economy, appliance saturation, price of electricity, and considering forecasts of these variables for the next decade, a forecast of use per customer, energy sales, and peak demand was made in December of 1975. The peak demand forecast was revised to reflect an average annual growth rate of 6.6% for the period of 1975 to 1985. For generation planning purposes, a band of growth rates ranging from 4.4% to 7.7% was used.

In 1976, the summer peak of 7598 MW exceeded the 1975 summer peak by 7.4%. It is estimated that average customers will show a 3.0% increase by year end 1976. Our most recent forecast employs a band of estimates for peak load and shows an annual average growth rate for peak load within the range of 4.4% to 6.1% during the period 1976 to 1985.

Population in the FPL service territory will continue to grow throughout the period 1976-1985. However, the rate of growth may be substantially less than in the past. To arrive at a population distribution, three independent projections (Kiplinger, University of Florida, and First Research) were utilized. The average annual population growth rate is expected to be in the range of 2.5% to 3.1%. In the period 1965-1975, the average annual rate of increase was 4.2 percent.

Historically, the number of FPL residential customers has grown at a rate faster than the population in general. From 1965 to 1975, customers increased at an average annual rate of 6.2%. Residential customers, which currently are about 90% of total customers, have accounted for most of this increase. In 1950, there were 4.2 people for every FPL residential customer. By 1975, this ratio had dropped to 2.9, and is projected to be 2.5 by 1985. The shifting life style of Americans will result in a continuation of a household formation rate higher than the population growth rate. Contributing factors are second homes, the tendency of more people to remain single longer, and the high percentage of retirees. All of these factors contribute to a smaller family size which will result in a household formation rate higher than the population growth rate. Therefore, over the period 1975 to 1985, the projected average annual growth rate for customers is placed at 4.2 percent. While representing a reduction from the 6.2 percent annual growth

from 1965 to 1975, FPL customer growth as forecasted, should exceed that of the United States as a whole, as has historically been the case.

The real price of electricity (in constant dollars) is currently being projected to increase within a range of 0 to 2.9 percent. The average real price of electricity in FPL's service territory fell at an average annual rate of 4.6 percent from 1965 to 1972. However, from that time through 1975, the price has increased at an average annual rate of 10.9 percent. This condition was, of course, set off by the oil embargo of 1973 and the inflationary cost spiral that ensued.

Real per capita personal income and the Florida employment, expressed in the form of an economic index, is forecasted to increase at a rate of 1.9 to 3.7 percent annually. The upper bound was established from the historical 1965-1975 economic index which grew at an annual rate of 3.7 percent. The lower bound was established from the historical 1970-1975 economic index which grew at only 1.9 percent.

Accompanying the rising incomes is an increase in energy-using equipment. This growth is most dramatically portrayed by air conditioning. Approximately 47 percent of FPL's customers owned air conditioners in 1965, but by 1975, that number had increased to approximately 82 percent. This represents an average growth rate of 5.6 percent per year for that period. This increase in air conditioning saturation, the percentage of customers owning air conditioners, along with the less dramatic rise in water heater saturation has had a significant impact on peak demand. Over the period of 1975 to 1985, air conditioning saturation adjusted for appliance efficiency is projected to grow at an average annual rate of 0.1 to 0.8 percent, considerably less than the 5.6% experienced from 1965 to 1975.

The generation schedule has been modified to reflect our most recent forecast. St. Lucie Unit No. 2 is currently scheduled for late 1982 for service during the summer peak of 1983. This is the earliest year that it is available. The Martin units are now scheduled for in-service by the peak of 1982 (Unit 1) and 1983 (Unit 2). In addition, seven older fossil units totaling 483 MW are scheduled to be placed on cold standby beginning prior to the summer of 1977 for economy reasons, and are scheduled for reactivation by the summer of 1982. The capability of fossil steam generating units has been re-evaluated based on demonstrated continuous capabilities.

4. The FPC's and SERC's latest statements on the desirable reserve margin for FPL and the Florida subregion.

Neither the Federal Power Commission nor SERC have issued any general recommendation regarding the size of FPL's reserve generation. We understand that the FPC, in general, recommends reserve generation of 20% as a minimum requirement.

5. Current estimates of St. Lucie 2 capital cost, fuel cost, and annual operating costs.

   See response to Item 7 below.

6. Current startup date for St. Lucie 2.

   December, 1982.

7. Current estimates of the capital costs, fuel costs, and annual operating costs for coal and oil power plants with the same startup dates, capacities, and annual generation as St. Lucie 2.

COMPARISON OF CAPITAL COSTS, ANNUAL OPERATING COSTS, AND FUEL COSTS BETWEEN SL2, OIL-FIRED and COAL-FIRED POWER PLANTS FOR 1983 OPERATION

	St. Lucie 2	Oil Fired	Coal Fired w/SO_2
CAPITAL COSTS	$725 Million	$397 Million	$715 Million
COST OF 1st CORE	$ 61 Million	-	-
O & M COSTS	2.16 mills/kwh	1.06 mills/kwh	4.70 mills/kwh
FUEL COSTS	$.65/$10^6$ Btu	$3.23/$10^6$ Btu	$1.87/$10^6$ Btu
HEAT RATES	10,970 Btu/kwh	9,400 Btu/kwh	9800 Btu/kwh

8. Identify the economic advantage of building at Hutchinson Island in comparison to other similar coastal sites.

   In Section 9.3 of the St. Lucie Unit No. 2 Environmental Report (Rev. 1, 10/2/73) the differential cost between constructing the proposed facility at Hutchinson Island and at a similar coastal site was estimated to be an additional $69.6 million. FPL believes that a current estimate utilizing this figure with an appropriate inflation factor applied would be reasonable.

JSB/DJK
11/17/76

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TABLE 8.1

PAST AND PROJECTED POPULATION OF
FLORIDA POWER & LIGHT SERVICE AREA

FPL Service Area:	1960	1970	1980
Brevard	111,400	230,000	272,100
Broward	333,900	620,100	1,090,400
Charlotte	12,600	27,600	56,500
Collier	15,800	38,000	84,600
Columbia	20,100	25,300	31,600
Dade	935,000	1,267,800	1,580,500
DeSoto	11,700	13,100	22,200
Flagler	4,600	4,500	9,300
Indian River	25,300	36,000	55,400
Lee	54,500	105,200	200,200
Manatee	69,200	97,100	150,600
Martin	16,900	28,000	66,500
Okeechobee	6,400	11,200	21,800
Palm Beach	228,100	349,000	581,300
Putnam	32,200	36,400	49,800
Sarasota	76,900	120,400	200,200
Seminole	54,900	83,700	171,700
St. Johns	30,000	31,000	50,600
St. Lucie	39,300	50,800	84,600
Suwannee	15,000	15,600	22,300
Volusia	125,300	169,500	249,600
TOTAL	2,219,100	3,360,300	5,051,800

Source: University of Florida, Division of Population Studies, Bureau of Economic and Business Research, August 1976.

DJK/JMA
11/17/76

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TABLE 8.2

FLORIDA POWER & LIGHT COMPANY
SUMMER PEAK LOADS, CAPABILITIES AND RESERVES
(Capability is Summer Peak Capability)

Year	One Hour Peak Load Net (MW)	% Increase	Capability Net (MW)	Reserve With St. Lucie Unit No. 2 (MW)	Reserve With St. Lucie Unit No. 2 %	Reserve Without St. Lucie Unit No. 2 (MW)	Reserve Without St. Lucie Unit No. 2 %
1969	4329	14.3	4873				
1970	5031	16.2	5317				
1971	5496	9.2	5761				
1972	6243	13.6	6584				
1973	6894	10.4	7636				
1974	7235	4.9	9015				
1975	7076	(2.2)	9015				
1976	7598	7.4	8927				
	Forecast Low - High						
1977	7950-8230	4.6-8.3	10224	2274-1994	28.6-24.2		
1978	8350-8880	5.0-7.9	10999	2649-2119	31.7-23.9		
1979	8780-9540	5.1-7.4	10999	2219-1459	25.3-15.3		
1980	9210-10200	4.9-6.9	10999	1789- 799	19.4- 7.8		
1981	9640-10860	4.7-6.5	10999	1359- 139	14.1- 1.3		
1982	10060-11500	4.4-5.9	12257	2197- 757	21.8- 6.6		
1983	10470-12120	4.1-5.4	13834	3364-1714	32.1-14.1	2562- 912	24.5- 7.5
1984	10870-12710	3.8-4.9	13834	2964-1124	27.3- 8.8	2162- 322	19.9- 2.5
1985	11250-13270	3.5-4.4	13834	2584- 564	23.0- 4.3	1782-(238)	15.8-(1.8)

Notes: (1) Capability and reserves are based on revised Generation Schedule, Table 8.7, dated 11/16/76.

(2) St. Lucie scheduled to be in service during 1982 and available for the summer peak of 1983.

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TABLE 8.3

STATISTICS ON COST AND CONSUMPTION OF ELECTRICITY
(1965-1974)

	AVERAGE COST TO CONSUMERS CENTS PER KILOWATT HOUR			AVERAGE KILOWATT-HOURS PER CUSTOMER (THOUSANDS)		
	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	RESIDENTIAL	COMMERCIAL	INDUSTRIAL
1974	3.10	3.04	1.69	7.544	46.981	1,704.298
1973	2.54	2.41	1.25	7.738	48.055	1,858.577
1972	2.42	2.30	1.16	7.395	45.293	1,825.199
1971	2.32	2.20	1.10	7.029	42.612	1,738.885
1970	2.22	2.08	1.02	6.708	40.505	1,691.610
1969	2.21	2.06	.98	6.244	37.535	1,664.777
1968	2.25	2.07	.97	5.708	35.039	1,587.582
1967	2.31	2.11	.98	5.211	32.225	1,481.466
1966	2.34	2.13	.98	4.930	30.226	1,441.466
1965	2.39	2.18	1.00	4.624	28.152	1,286.591

SOURCE: Federal Power Commission, STATISTICS OF PRIVATELY OWNED ELECTRIC UTILITIES IN THE UNITED STATES, 1974

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TABLE 8.5

FLORIDA POWER & LIGHT COMPANY
RESULTS OF LOAD CURTAILMENT

Date	Load Curtailment Period	Number of Customers	Amount of Load Curtailed kW
12/16/68	5:00 - 7:00 p.m.	155	115,688
7/7/69	4:00 - 7:00 p.m.	46	87,240
7/8/69	4:00 - 7:00 p.m.	58	86,210
7/9/69	4:00 - 7:00 p.m.	67	77,980
1/8/70	5:00 - 9:00 p.m.	281	151,680
1/9/70	6:30 -10:30 a.m.	204	131,080
1/9/70	5:00 - 9:00 p.m.	337	161,290
1/10/70	7:00 -10:30 a.m.	254	148,910
1/10/70	5:00 - 9:00 p.m.	215	131,410
2/4/70	5:30 - 9:00 p.m.	182	122,660
7/15/70	4:45 - 7:00 p.m.	106	82,699 (Voluntary)
7/16/70	4:30 - 7:00 p.m.	98	72,603 (Voluntary)
7/27/70	4:00 - 7:00 p.m.	119	87,616 (Voluntary)
7/28/70	4:30 - 7:00 p.m.	118	79,665
7/31/70	12:00N-10:00 p.m.	211	173,592
8/3/70	3:00 - 7:00 p.m.	349	112,237 (Voluntary)
8/4/70	4:00 - 7:00 p.m.	108	80,422 (Voluntary)
8/5/70	4:00 - 8:00 p.m.	317	104,452 (Voluntary)
9/2/70	4:00 - 7:00 p.m.	257	105,570 (Voluntary)
9/3/70	4:00 - 7:00 p.m.	137	90,072 (Voluntary)
1/20/71	5:00 - 9:00 p.m.	467	175,272
4/29/71	4:00 - 8:00 p.m.	703	202,110
4/30/71	4:00 - 8:00 p.m.	498	149,372 (Voluntary)
6/16/71	4:00 - 7:00 p.m.	572	162,082 (Voluntary)
8/18/71	3:00 - 7:00 p.m.	684	245,788

(continued)

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TABLE 8.5

FLORIDA POWER & LIGHT COMPANY
RESULTS OF LOAD CURTAILMENT

Date	Load Curtailment Period	Number of Customers	Amount of Load Curtailed kW
7/3/72	4:00 - 8:00 p.m.	444	140,002
7/5/72	4:00 - 8:00 p.m.	477	180,871
7/28/72	4:00 - 8:00 p.m.	609	228,357
7/29/72	4:00 - 8:00 p.m.	321	87,728 (Voluntary)
9/7/72	4:00 - 8:00 p.m.	692	242,079
9/14/72	4:00 - 8:00 p.m.	671	256,170
9/15/72	4:00 - 8:00 p.m.	683	263,760
9/18/72	3:30 - 8:00 p.m.	678	266,142
9/19/72	3:30 - 8:00 p.m.	692	263,977
9/25/72	4:00 - 8:00 p.m.	668	241,032
9/26/72	3:00 - 7:00 p.m.	682	275,734
9/27/72	3:30 - 7:00 p.m.	704	262-546
5/28/73	4:00 - 8:00 p.m.	85	57,350 (Holiday)
5/29/73	2:00 - 8:00 p.m.	267	229,650
1974	NONE	0	0
1975	NONE	0	0

DJK
11/15/76

REVISED

TABLE 8.6

SOUTHEASTERN ELECTRIC RELIABILITY COUNCIL
FLORIDA SUBREGION

Estimated Capability

Period	Peak Hour Load (MW)	Total Capability (MW)	Reserve With St. Lucie Unit No. 2 (MW)	Reserve With St. Lucie Unit No. 2 % Peak	Reserve Without St. Lucie Unit No. 2 (MW)	Reserve Without St. Lucie Unit No. 2 % Peak
1976 Summer	14875	19349				
76/77 Winter	14347	22922				
1977 Summer	15893	22153				
77/78 Winter	15277	23954				
1978 Summer	16893	22934				
78/79 Winter	16330	24488				
1979 Summer	17994	24224				
79/80 Winter	17435	25495				
1980 Summer	19187	24444				
80/81 Winter	18570	25626				
1981 Summer	20484	25237				
81/82 Winter	19964	28508	8544	42.8	7724	38.7
1982 Summer	21856	27414	5558	25.4	4756	21.8
82/83 Winter	21282	28665	7383	34.7	6563	30.8
1983 Summer	23245	27732	4487	19.3	3685	15.9
83/84 Winter	22672	29123	6451	28.5	5631	24.8
1984 Summer	24696	29255	4559	18.5	3757	15.2
84/85 Winter	24191	31030	6839	28.3	6019	24.9
1985 Summer	26287	31378	5091	19.4	4289	16.3
85/86 Winter	25627	33234	7607	29.7	6787	26.5

Source: SERC Florida Subregion Coordinated Bulk Power Supply Program 1976-1995 dated 4-1-76.

Data supplied above does not reflect the latest Load Forecasts and Generation Schedules of FPL and other Florida utilities.

TABLE 8.7

NET SUMMER CAPABILITY
AND UNIT ADDITIONS

Year	Unit Additions	Net Summer Capability (MW)	Fuel	System Capability (MW) Nuclear Steam	Fossil Steam	Gas Turbine	Total
1969					4846	27	4873
1970					4846	471	5317
1971					4846	915	5761
1972					5225	1359	6584
1973	Turkey Pt. 3	666	Nuclear	666	5604	1359	7629
	Sanford 5	379	Fossil				
1974	Turkey Pt. 4	666	Nuclear	1332	5652	2031	9015
	Ft. Myers GT	672	Fossil				
1975	---			1332	5652	2031	9015
1976	Miami 8 (retired)	45	Fossil		5564	2031	8927
	Cutler 3 (retired)	43	Fossil				
1977	St. Lucie 1	802	Nuclear	2134	6059[1][2]	2031	10224
	Manatee 1	775	Fossil				
	Putnam 1 & 2	484	Fossil				
1978	Manatee 2	775	Fossil	2134	6834	2031	10999
1979	---			2134	6834	2031	10999
1980	---			2134	6834	2031	10999
1981	---			2134	6834	2031	10999
1982	Martin 1[3]	775	Fossil	2134	8092[2]	2031	12257
1983	St. Lucie 2	802	Nuclear	2936	8867	2031	13834
	Martin 2 [3]	775	Fossil				
1984	---			2936	8867	2031	13834
1985	---			2936	8867	2031	13834

(1) Capability of generating units re-evaluated based on demonstrated continuous capabilities.

(2) 483 MW cold standby, off line prior to summer of 1977, on line for summer of 1982 (Cutler Units 4, 5, & 6; Riviera Units 1 & 2; and Palatka Units 1 & 2).

(3) Depending on future requirements the in-service dates for the Martin units can be advanced or retarded.