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 FACIL: 50-335 St. Lucie Plant, Unit 1, Florida Power & Light Co. 05000335
 AUTH. NAME: AUTHOR AFFILIATION
 URRIG, R.E. Florida Power & Light Co.
 RECIP. NAME: RECIPIENT AFFILIATION
 DENTON, H.R. Office of Nuclear Reactor Regulation

SUBJECT: Forwards info, in response to NRC 800104 ltr, re power reliability, Requests extension of implementation of NUREG-0578 Category A requirements beyond 800215.

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THE
 UNITED STATES OF AMERICA
 DISTRICT COURT OF THE DISTRICT OF COLUMBIA
 IN RE:

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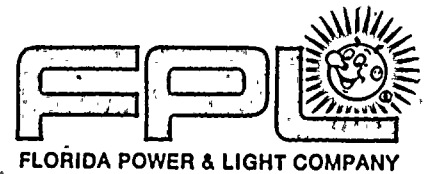
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January 15, 1980
L-80-24

Office of Nuclear Reactor Regulation
Attention: Harold R. Denton, Director
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dear Mr. Denton:

Re: St. Lucie Unit 1
Docket No. 50-335

This letter is in response to your letter dated January 4, 1980 which requested information related to power reliability. The information provided is based on current information and projections and could change as a result of subsequent events.

Florida Power & Light Company believes there is a high probability that it will be necessary to seek an extension of the implementation of Category A requirements beyond February 15, 1980 on the basis of power reliability in Southeast Florida. Any deterioration of our projected power reliability as depicted by the attached information would provide additional justification for such an extension request. The attached information is being submitted to aid you in your review for such an extension request. We will advise you immediately of any significant changes in the attached information.

Very truly yours,

Robert E. Uhrig
Vice President
Advanced Systems & Technology

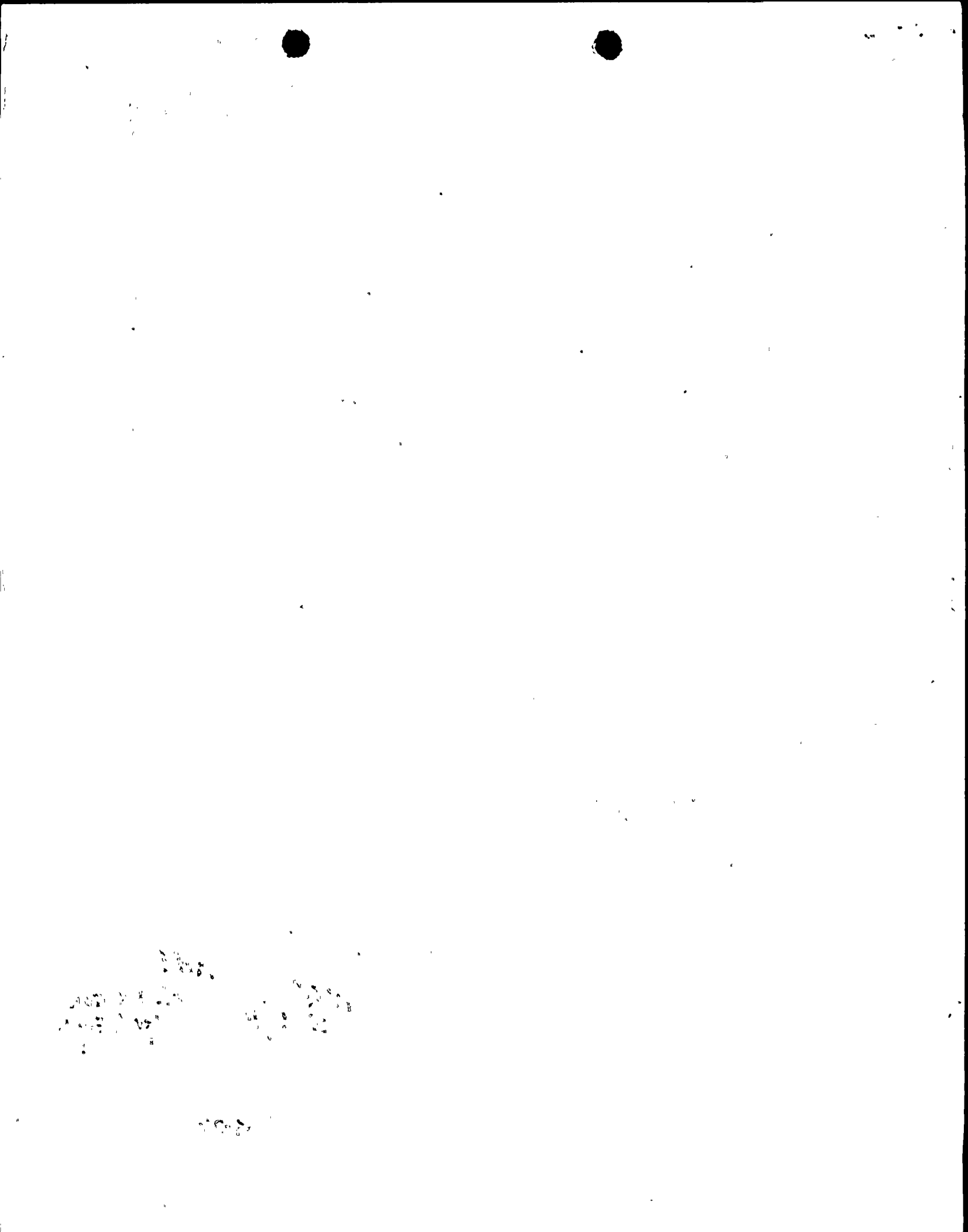
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Attachment

cc: J. P. O'Reilly, Region II
Harold F. Reis, Esquire

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Add:
H. Denton
Ltr & Encl
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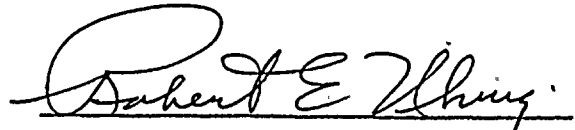


STATE OF FLORIDA)
)
COUNTY OF DADE) SS.

Robert E. Uhrig, being first duly sworn, deposes and says:

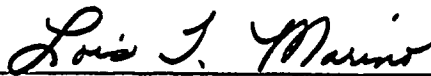
That he is a Vice President of Florida Power & Light Company, the Licensee herein;

That he has executed the foregoing document; that the statements made in this said document are true and correct to the best of his knowledge, information, and belief, and that he is authorized to execute the document on behalf of said Licensee.


Robert E. Uhrig

Subscribed and sworn to before me this

15 day of January, 1980



NOTARY PUBLIC, in and for the county of Dade,
State of Florida

My commission expires: NOTARY PUBLIC STATE OF FLORIDA at LARGE
MY COMMISSION EXPIRES AUGUST 24, 1981
BONDED THRU MAYNARD BONDING AGENCY



1942
MAY 10 1942
U.S. DEPARTMENT OF AGRICULTURE
WASHINGTON, D. C.

ITEM #1

Q. A listing of all utility-owned (in whole or in part) generators and their expected availability and capacity to produce power. Indicate planned unit maintenance or other outage and rationale for scheduling such outage at this time.

A. A listing of FPL's generating units is provided below. Presently, FPL has three units undergoing maintenance and/or scheduled refueling. Manatee Unit #1 is being overhauled and is expected to be returned to service in the second half of January. Turkey Point Unit #3 is being refueled and is expected to be back to power at the end of January. Port Everglades Unit #4 is undergoing maintenance and repair and is presently expected to be available in mid-February.

FPL considers oil conservation to be of primary importance to our nation. Accordingly, we will be conducting a test program at one of our Sanford units whereby a coal-oil mixture will be burned. Modifications are required to be made to plant facilities to accommodate such a program. We have scheduled Sanford Unit #4 to be brought off the line in late February to make the required modifications. This outage is expected to last approximately three weeks. The effects of the outage of St. Lucie Unit #1 concurrent with the Sanford Unit #4 scheduled modifications are reflected in the reserve margin calculations provided in response to Item 9. A calculation of system reserve for the outage of only St. Lucie Unit #1 is also provided.

We have not included in our calculations the effects of gas turbine unavailability due to maintenance and have therefore not considered the effects of curtailable loads as they tend to offset one another.

We have assumed the outage of Cape Canaveral #2 on February 3 for 3 weeks of maintenance and of Port Everglades #3 on February 24 for 7 weeks of maintenance, can be rescheduled to a later time in the year. This revised maintenance schedule is reflected in the calculations in Item 9 which would yield much lower reserve margins had these changes not been made.

TABLE 1
FPL SYSTEM GENERATING CAPACITY

<u>Unit Name</u>	<u>Net Winter Continuous Capability</u>
<u>Turkey Point</u>	<u>2145.5</u>
1	370
2	370
3	696
4	696
Diesels	13.5
<u>Lauderdale</u>	<u>1042</u>
4	139
5	139
GT's	764
<u>Port Everglades</u>	<u>1547.5</u>
1	206
2	206
3	370
4	370
Diesels	13.5
GT's	382
<u>Riviera</u>	<u>662</u>
1	41
2	71
3	275
4	275
<u>St. Lucie</u>	<u>795</u>
1	795
<u>Cape Canaveral</u>	<u>736</u>
1	370
2	366
<u>Sanford</u>	<u>871</u>
3	139
4	366
5	366
<u>Putnam</u>	<u>502</u>
1	251
2	251
<u>Manatee</u>	<u>1550</u>
1	775
2	775
<u>Ft. Myers</u>	<u>1265</u>
1	139
2	370
GT's	756
<u>Total Installed Net Capability =</u>	<u>11166</u>

ITEM #2.

Q. A listing of all existing electric power purchase and sale contracts. Also, identify any special purchase or sales of power that take place. Indicate the specific applicability in megawatts of any of these contracts to the period of concern.

A. Florida Power & Light (FPL) has interchange contracts with other utilities within the state of Florida. However, no firm purchases of power are presently being made and none could be negotiated under these contracts on such short notice. Interchanges could occur under presently approved economy and emergency schedules, however, the availability of such power is unpredictable and not guaranteed. Even if power were available for purchase, reliability considerations dictate a maximum import capability of 225 MW. This number is based on an import capacity of 1000 MW reduced by the output capacity of our largest unit, 775 MW. (Assuming St. Lucie 1 is off.) (See Item #10).

ITEM #3

Q. A copy of any regional power sharing or reliability agreement indicating the specific applicability of any part of this agreement and provide detailed information regarding the possible impact of applicable load curtailment plans.

A. There is no reliability agreement within the state of Florida and no sharing of power other than interchange transactions as described in Item #2.

ITEM #4

Q. The expected peak load for each month for the period of concern, identifying any interruptible loads available. Additionally, an analysis of the impact of adverse weather conditions on monthly peak demand should be supplied.

A. The expected monthly peak load for the period of concern of 8990 MW is reflected in the calculations in Item #9.

FPL has no interruptible load. FPL has approximately 175 MW of curtailable load. This curtailable load is not separately shown on the calculations in Item #9--Table #2 since, for the sake of simplicity, it was assumed this load is directly offset by an equivalent amount of gas turbine capacity which is continuously out for maintenance (see Item #1 and Item #9).

ITEM #5

Q. A description of any expected system transmission line loading, voltage control, or system stability problem. Identify any extended transmission line or generating unit voltages which may have an impact.

A. Southeast Florida is that area bounded by St. Lucie County on the north, the Florida Everglades on the west, and Dade County on the south. This area encompasses approximately three million people and nearly 70 percent of the total FPL load. The total generating capacity of the area's five active power plants is less than the total area load. As a result, the area is perennially dependent on its transmission interconnections--one 500 kV and one 230 kV line to the west and two 230 kV lines to the north--to serve its needs.

Because of its size, natural boundaries, and dependence on external transmission, Southeast Florida has unique reliability and transient stability characteristics. Accordingly, FPL attempts to operate and control this area within carefully defined limits.

After considerable study and operating experience, it has been established that, to consistently maintain an acceptable level of reliability within Southeast Florida and reduce the likelihood of system islanding, total transmission flows into Southeast Florida must be controlled to a level equal to (1500 MW minus the largest area generating unit). Since the largest generating unit within this area is typically St. Lucie #1 (795 MW) or Turkey Point #3 or #4 (696 MW each), total transmission flows are thereby typically constrained to 700-800 MW.

Item #5 (continued)

This operating practice ensures that, for the sudden loss of a large Southeast Florida generating unit, all transmission flows, stability limits, and voltages remain within long term ratings. Moreover, for more serious disturbances, the likelihood of system islanding is substantially reduced, if not avoided.

Table 2 shows Southeast Florida generating reserves under different operating conditions. As shown, loss of St. Lucie #1 causes reserves to fall to 4%. Negative reserves mean the above described limit is violated and consequently the reliability risk associated with any disturbance increases accordingly.

Item #6

The level of current fuels inventories, an assessment of the adequacy of fuel supplies to meet energy requirements during planned nuclear outage, and the expected impact of the nuclear unit outages on these levels.

Current and projected fuel inventories are adequate.

Item #7

A description of any expected impact on the regional power supply network.

Assuming the "regional" network refers to Peninsular Florida, FPL has not attempted to estimate the impact of the outage of St. Lucie #1 on Peninsular Florida. FPL understands, however, the Florida Electric Power Coordinating Group (FCG), which represents most Florida electric utilities, at the request of DOE, has submitted data describing expected impact on a Peninsular Florida basis. The data was submitted to:

Mr. Richard E. Weiner
Director, Division of Power Supply & Reliability
Economic Regulatory Administration
U.S. Department of Energy
2000 M. Street, N.W.
Washington, D.C. 20461

through transmittal letter dated January 10, 1980 from
Michehl R. Gent, General Manager of the FCG.

ITEM #8

- Q. A weekly compilation of the utility's net energy for load for the projected outage period and for the same time period of the previous year (includes details on generation, purchases and sales, and anticipated load). Provide details on any load management or similar activity which might cause significant variations in customer energy requirements.
- A. FPL's 1980 estimated and 1979 actual net energy for load for the period of concern are given below. These figures assume no interchange transactions but do include wholesale sales under our Partial Requirements (PR) and Sale for Resale (SR) rates. We do not generally keep the requested information on a weekly basis, rather, we keep it on a monthly basis. Accordingly, we have assumed that the load is evenly distributed throughout the month in compiling the data presented below.

1979 Net Energy For Load

<u>Time Period</u>	<u>Energy (Million kWh)</u>
2/1-2/3	337.38
2/4-2/10	787.22
2/11-2/17	787.22
2/18-2/24	787.22
2/25-3/3	736.56

1980 Estimated Net Energy for Load

<u>Time Period</u>	<u>Energy (Million kWh)</u>
2/1-2/2	241
2/3-2/9	844
2/10-2/16	844
2/17-2/23	844
2/24-3/1	833

Item #9

A calculation of the anticipated minimum generating reserve margin during each week of the period. The minimum reserve margin shall be calculated as the generating capacity in megawatts available to supply load above the anticipated system peak load for the week. (This calculation should consider system power sales and purchases.) Please relate the reserve margin calculation to its corresponding loss of load probability.

Table 2 calculates reserve margins for FPL and Southeast Florida for different time periods and under the stated operating conditions.

A 20 percent reserve margin is generally regarded by the electric utility industry and by those government agencies responsible for reviewing reliability standards, as the minimum reserve level which should be maintained by systems such as FPL to insure adequacy of generation supplies. The 20 percent reserve margin is essential to protect against unscheduled generating outages, unit deratings, and other contingencies; as well as to maintain, and when necessary supply, spinning reserve commitments.

An examination of Table 2 reveals that, even under the most favorable conditions--i.e., only St. Lucie #1 out of service, and all other FPL units fully available--reserve margins for FPL's system and for Southeast Florida fall below 20 percent (17.3 percent and 4 percent respectively). Under more realistic operating conditions--i.e., either Port Everglades #4 or Sanford #4, in addition to St. Lucie #1, out of service--reserve margins for FPL fall to approximately 13 percent and for Southeast Florida

Item #9 (continued)

become negative. It should be noted that additional units were originally scheduled for maintenance during the period of concern (as described in Item #1) and it was assumed that, where feasible, maintenance for these units will be rescheduled for a later date. Therefore, Table 2 reflects maintenance schedules already adjusted to minimize the impact of an unexpected outage of St. Lucie #1.

As regards LOLP, FPL, as well as other FCG utilities, analyzes and calculates LOLP on an annual basis. The data base and analytic tools readily available to FPL or the FCG to calculate LOLP do not lend themselves to weekly or even monthly calculations of LOLP.

In prior LOLP evaluations of the FPL and the FCG systems, it has been determined that acceptable LOLP indices, whether for FPL or for Peninsular Florida, generally correspond to FPL reserve margins above 20 percent.

TABLE 2
FPL SYSTEM

<u>Time Period</u>	<u>Installed Gen. Capacity</u>	<u>Maintenance</u>	<u>Net Dependable Capacity</u>	<u>Transmission Imports</u>	<u>Total Sources</u>	<u>Load</u>	<u>Reserves</u>	
							<u>(MW)</u>	<u>(%)</u>
2/1-2/15	11,116	1,165 ¹	9,951	225	10,176	8,990	1186	13.2
2/15-3/1	11,116	795 ²	10,321	225	10,546	8,990	1556	17.3
2/15-3/1	11,116	1,161 ³	9,955	225	10,180	8,990	1190	13.2

SOUTHEAST FLORIDA

2/1-2/15	6,192	1,165 ⁴	5,027	804	5,831	5,979	(148)	(3)
2/15-3/1	6,192	795 ⁵	5,397	804	6,201	5,979	222	4

¹Units Out: St. Lucie 1, Pt. Everglades 4

²Units Out: St. Lucie 1

³Units Out: St. Lucie 1, Sanford 4

⁴Units Out: St. Lucie 1, Pt. Everglades 4

⁵Units Out: St. Lucie 1

Item #10

A statement on the availability of emergency support from contiguous control areas, indicating size of potential support and conditions on availability.

The total estimated import capability of the FPL system from the interconnected network is approximately 1000 MW. To protect against the sudden loss of a large FPL generating unit and preclude more serious consequences, FPL must "reserve" out of this total import capability an amount equal to the largest FPL generating unit. Accordingly, the analysis assumes FPL could purchase (and neighboring systems can collectively sell), on a firm basis, an amount equal to the remaining import capacity (1000 MW minus the largest FPL generating unit). This is the amount used for calculation purposes in Table 2.