

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Generic investigation into the aggregate electric utility reserve margins planned for Peninsular Florida.

DOCKET NO. 981890-EU
FILED: August 31, 1999

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that one true and correct copy of Staff's Testimony of Robert L. Trapp and Testimony of Tom Ballinger has been furnished by U.S. Mail this 31st day of August, 1999, to the following:

Reedy Creek Improvement District
Willard Smith/Fran Winchester
Post Office Box 10175
Lake Buena Vista, FL 32830

Utilities Commission, City of New Smyrna Beach
Ronald L. Vaden
Post Office Box 100
New Smyrna Beach, FL 32170

City of Tallahassee
Richard G. Feldman
300 S. Adams Street
Tallahassee, FL 32301

Office of Public Counsel
John Roger Howe
111 W. Madison Street, Rm. 812
Tallahassee, FL 32399

McWhirter Reeves McGlothlin
Vicki Gordon Kaufman
117 South Gadsden Street
Tallahassee, FL 32301

Beggs & Lane
Jeffrey Stone
Post Office Box 12950
Pensacola, FL 32576

Ausley & McMullen
James Beasley
Post Office Box 391
Tallahassee, FL 32301

FL Electric Cooperative Assoc.
Michelle Hershel
Post Office Box 590
Tallahassee, FL 32302

- AFA _____
- APP _____
- CAF _____
- CMU _____
- CTR _____
- EAG _____
- LEG _____
- MAS _____
- OPC _____
- PAI _____
- SEC _____
- WAW _____
- OTH _____

Trapp
DOCUMENT NUMBER-DATE
10391 AUG 31 99
CASE RECORDS/REPORTING

Ballinger
DOCUMENT NUMBER-DATE
10392 AUG 31 99
CASE RECORDS/REPORTING

CERTIFICATE OF SERVICE
DOCKET NO. 981890-EU
PAGE 2

Legal Environmental Assistance
Foundation
Deb Swim
1114 Thomasville Road, Suite E
Tallahassee, FL 32303

Young VanAssenderp & Varnadoe
Roy Young
P.O. Box 1833
Tallahassee, FL 32302

Landers & Parsons
Scheff Wright
Post Office Box 271
Tallahassee, FL 32302

Moyle Flanigan
Jon Moyle, Jr.
118 North Gadsden Street
Tallahassee, FL 32301

Steel Hector and Davis
Matthew M. Childs
215 South Monroe Street
Suite 601
Tallahassee, FL 32301

City of Homestead
James Swartz
675 N. Flagler Street
Homestead, FL 33030

City of Lake Worth Utilities
Harvey Wildschuetz
1900 Second Ave., North
Lake Worth, FL 33461

Seminole Electric Cooperative
Timothy Woodbury
Post Office Box 272000
Tampa, FL 33688

Florida Power Corporation
Jim McGee
Post Office Box 14042
St. Petersburg, FL 33733

City of Lakeland
Gary Lawrence
501 East Lemon Street
Lakeland, FL 33801

Gainesville Regional Utilities
Raymond O. Manasco, Jr.
Post Office Box 147117
Station A-138
Gainesville, FL 32614-7117

Jacksonville Electric
Authority
Michael B. Wedner
117 W. Duval St., Suite 480
Jacksonville, FL 32202

Kissimmee Utility Authority
A.K. (Ben) Sharma
Post Office Box 423219
Kissimmee, FL 34742

Orlando Utilities Commission
T. B. Tart
Post Office Box 3193
Orlando, FL 32802

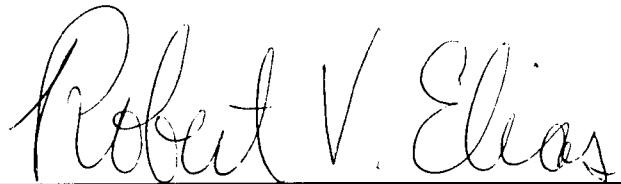
CERTIFICATE OF SERVICE
DOCKET NO. 981890-EU
PAGE 3

Florida Municipal Power Agency
Frederick Bryant
P.O. Box 3209
Tallahassee, FL 32315

FRCC
Ken Wiley
405 Reo Street, Suite 100
Tampa, FL 33609

Thornton Williams & Associates
Paul Sexton
215 South Monroe St.
Suite 600A
Tallahassee, FL 32302

Foley & Lardner
Thomas Maida
300 East Park Avenue
Tallahassee, Fl 32301



ROBERT V. ELIAS
Staff Counsel
Florida Bar No. 0530107

Florida Public Service Commission
Gerald L. Gunter Building
2540 Shumard Oak Boulevard
Tallahassee, Florida 32399
(850) 413-6199

ORIGINAL

DOCKET NO.: 981890-EU
WITNESS: Direct Testimony Of Robert L. Trapp,
Appearing On Behalf Of Staff
DATE FILED: August 31, 1999

DOCUMENT NUMBER-DATE

10391 AUG 31 89

FPCO-RECORDS/REPORTING

DIRECT TESTIMONY OF ROBERT L. TRAPP

1

2

3 Q. Please state your name and business affiliation.

4 A. My name is Robert L. Trapp. I am the Assistant Director of the Division
5 of Electric & Gas, Florida Public Service Commission.

6

7 Q. Please summarize your educational background and employment experience.

8 A. I attended the Georgia Institute of Technology graduating with a
9 Bachelor of Science degree in Electrical Engineering in 1974. I began
10 my employment with the Florida Public Service Commission in January
11 1975. Over my years of employment with the Commission I have been
12 promoted through the ranks of the Engineering series to become the
13 Supervisor of System Planning. I was selected to my current position
14 as Assistant Director in June 1985.

15

16 Q. What is the purpose of your testimony?

17 A. The purpose of my testimony is to supplement the testimony of Tom
18 Ballinger by providing specific recommendations as to what action should
19 be taken by the Commission with respect to the issues identified in this
20 case.

21

22 Q. Are you offering any exhibits?

23 A. Yes, I am sponsoring three exhibits; Exhibit RLT-1, Exhibit RLT-2, and
24 Exhibit RLT-3.

25

1 Q. Please summarize your testimony.

2 A. Based on the analyses performed by Mr. Ballinger, I believe that the
3 Commission should utilize a summer and winter peak reserve margin of 20
4 percent for Peninsular Florida. This 20 percent reserve margin should
5 be calculated based on the simple aggregation of each individual
6 utility's reserves and seasonal peak load without discounting for
7 peninsular diversity.

8

9 Further, until such time as demonstrated otherwise on a case-by-case
10 basis, the suitability of each peninsular Florida utility's Ten-Year
11 Site Plan should be judged based on this 20 percent reserve margin.

12

13 Because of the dynamic nature of the planning process and the need for
14 continuing critical review, the 20 percent reserve margin criteria used
15 to evaluate the suitability of the Ten-Year Site Plans should not be
16 codified into a rule at this time. Rather, the Commission should
17 continue to evaluate the reliability of utility generation resource
18 plans using the Ten-Year Site Planning process.

19

20 Q. Why should the Commission adopt a 20 percent summer and winter peak
21 reserve margin?

22 A. As testified to by Mr. Ballinger, the two tables contained in Exhibit
23 _____ (RLT-1) show peninsular Florida's exposure to capacity shortfalls
24 under different reserve margin criteria.

25

1 As shown by these two tables, my selection of a 20 percent reserve
2 margin minimizes the risk of capacity alerts during the summer and
3 assures that if Florida experiences another extreme freeze like that
4 experienced during Christmas 1989, customer outages (MW) should be no
5 worse than that experienced during Christmas 1989. During Christmas
6 1989, customer demand outstripped available generating capacity for a
7 three-day period beginning Saturday evening, December 23, and continuing
8 through midday Monday, December 25. Rotating blackouts were instituted
9 on each of these three days resulting in a total of 569 MW on Saturday,
10 4,744 MW on Sunday, and 4,472 MW on Monday of firm load not served.
11 Prior to initiating rotating blackouts, non-firm customer loads such as
12 interruptible, curtailable, and load management were curtailed (up to
13 1,495 MW statewide).

14

15 Q. Would you now briefly address the specific issues identified in this
16 docket?

17 A. Yes.

18

19 Q. Issue 1: What is the appropriate methodology, for planning purposes, for
20 calculating reserve margins for individual utilities and for Peninsular
21 Florida?

22 A. Staff is not proposing any single methodology for calculating and
23 evaluating reserve margins for individual utilities and for Peninsular
24 Florida. Rather, staff has independently tested the reasonableness of
25 the FRCC seasonal peak reserve margin methodology. The results of these

1 analyses lead me to conclude that the FRCC methodology is overly
2 simplistic and does not yield credible results.

3
4 Generation planning is a dynamic process. Factors affecting bulk system
5 reliability (such as generating technology, maintenance practices,
6 outage rates, weather patterns, etc.) are all subject to change. The
7 tools used to evaluate system adequacy must also change. They are,
8 however, only tools. In the final analysis, system planners, utility
9 management, and the Commission must use their own experience and
10 judgement to determine the level of reserve margins that are likely to
11 best protect the public health and welfare. In this case, I have used
12 my judgement to recommend a 20 percent summer and winter reserve margin.

13
14 Q. Issue 2: What is the appropriate methodology, for planning purposes, for
15 evaluating reserve margins for individual utilities and for Peninsular
16 Florida?

17 A. I believe I have answered this in my response to Issue 1. My short
18 response would be to reiterate that I support the independent testing
19 performed by Mr. Ballinger and have used my judgement to recommend a 20
20 percent summer and winter reserve margin for Peninsular Florida and
21 individual utilities.

22
23 Q. Issue 3: How should the individual components of an individual or
24 Peninsular Florida percent reserve margin planning criterion be defined?

25 A. Consistently.

1 Q. Issue 3A1: How should capacity available at time of peak (ex. QF
2 capacity, firm and non-firm purchases and non-committed capacity) be
3 defined?

4 A. A reserve margin calculation is just one of many ways of expressing
5 information about the adequacy of generation supply. The most
6 conservative way of calculating a reserve margin is to include only firm
7 resources such as measured generating unit capability and firm purchased
8 power under contract. I have no problem, however, also measuring the
9 likely impact on reserve margins of non-firm purchases which have been
10 historically available at time of peak. Nor do I have a problem with
11 measuring the likely impact of planned and certified non-committed
12 capacity in a reserve margin calculation. What is important is that QF
13 capacity, firm and non-firm purchases, and non-committed capacity should
14 be reasonably quantified before they can be included in a reserve margin
15 calculation.

16
17 As I have stated, planning is a dynamic process and the tools used in
18 the planning process must reflect changes which occur in the industry.
19 One significant change which has occurred in the wholesale market is the
20 increase in non-committed capacity or merchant plants in Florida.
21 Approximately 2,500 MW of non-committed merchant plant capacity is
22 scheduled to be placed in-service in Peninsular Florida in the next five
23 years. None of this planned 2,500 MW of non-committed capacity is
24 subject to a need determination under the Florida Power Plant Siting
25 Act. This non-committed capacity will provide an additional source of

1 needed capacity in Florida.
2
3 Although non-committed capacity is increasing in Florida, the Peninsular
4 Florida utilities have refused to accept its existence. No attempt has
5 been made by the utilities or the FRCC to evaluate the potential
6 beneficial affect of these additional generating resources on utility
7 planned reserve margins. I find it surprising that a Reliability
8 Council such as the FRCC has not proposed or developed any methodologies
9 to measure the likely contribution of these generation resources to the
10 adequacy of the Peninsular Florida system. As I stated earlier in my
11 testimony, the selection of the appropriate reserve margin for
12 Peninsular Florida utilities is, in the final analysis, largely a matter
13 of judgement. It is often difficult to exercise good judgement based
14 on limited or restricted information.

15
16 I have recommended that, until such time as demonstrated otherwise on
17 a case-by-case basis, the suitability of each peninsular Florida
18 utility's Ten-Year Site Plan should be judged based on a 20 percent
19 reserve margin. If the FRCC and individual utilities were to credibly
20 quantify the availability of non-committed capacity being developed in
21 Florida, I would include this capacity in determining whether my
22 proposed 20 percent reserve margin criteria was met.

- 23
24 Q. Issue 3A2: Should equipment delays be taken into account?
25 A. Yes. Historically, utilities have shown the affect of unit in-service

- 1 | delays on reserve margins in their Need Determination petitions. This
2 | information can also provide useful insight when evaluating utility Ten-
3 | Year Site Plans.
4 |
- 5 | Q. Issue 3B1: How should seasonal firm peak demand be defined? Over what
6 | period (hourly, 30 min., 15 min.) should the seasonal firm peak demand
7 | be determined?
- 8 | A. Again, consistency is important in order to ensure comparability of
9 | analyses. Generally, one-hour has and should continue to be used unless
10 | otherwise agreed to by all utilities and made applicable to all MW or
11 | percent reserve margin calculations.
12 |
- 13 | Q. Issue 3B2: What is the proper method of accounting for the diversity of
14 | the individual utilities' seasonal firm peak demands and load
15 | uncertainty?
- 16 | A. I agree with Mr. Ballinger that the FRCC has lowered the "test bar" by
17 | applying a 2 percent diversity factor to their proposed 15 percent peak
18 | reserve margin criteria.
19 |
- 20 | Q. Issue 3B3: Is sufficient load uncertainty data available and being used?
- 21 | A. No. My recommendation of a 20 percent reserve margin is based on the
22 | concern that utilities are not giving enough weight to the potential
23 | adverse affects of weather on their generation planning.
24 |
- 25 | Q. Issue 3B4: How are interruptible, curtailable, load management and

1 wholesale loads treated at the end of their tariff or contract
2 termination period?

3 A. Generally, unless otherwise justified on a case-by-case basis, non-firm
4 retail loads should be included as firm loads in the year or appropriate
5 season following a tariff termination period, where such exist.
6 Likewise, firm wholesale loads should be treated as a reduction in firm
7 load in the year or appropriate season following a contract termination
8 period. Where uncertainty exists as to the extension of a tariff or
9 contract termination period, reserve margins should be calculated with
10 and without the non-firm or wholesale loads and appropriate judgement
11 exercised.

12
13 Non-firm load should be excluded from the firm load included in a
14 reserve margin calculation to the extent that the utility is
15 contractually allowed to exercise controlled outages. In other words,
16 non-firm load is expected to be operated just as a peaking unit would
17 be operated during peak periods and periods of tight capacity reserves.

18
19 Q. Issue 3B5: How should demand and/or energy use reduction options be
20 evaluated and included in planning and setting reserve margins?

21 A. Demand and/or energy use reductions such as voltage reductions
22 (brownouts) and feeder rotations (blackouts) should not be considered
23 in reserve margin calculations. Such reductions are what a reserve
24 margin is designed to avoid.

25

1 With respect to utility sponsored conservation measures, the effect of
2 demand-side conservation should be realistically estimated and included
3 as a reduction to firm load. Utilities should continually test the
4 assumed values for conservation against measured actual results and
5 make adjustments to their projections where appropriate.

6
7 Q. Issue 3C: Should a percent reserve margin planning criterion be
8 determined on an annual, seasonal, monthly, daily, or hourly basis?

9 A. I agree with Mr. Ballinger that the FRCC reserve margin methodology
10 should include evaluations of adequacy during periods other than just
11 summer and winter peak. Of particular concern are spring and fall off-
12 peak periods when many generating units are typically out of service for
13 maintenance. Many of the capacity advisories experienced over the last
14 few years have occurred during off-peak maintenance periods when
15 unpredicted severe weather, forced outages, or catastrophic events have
16 also occurred.

17
18 Q. Issue 4: How should generating units be rated (MW) for inclusion in a
19 percent reserve margin planning criterion calculation?

20 A. Generating unit capabilities should be based on verifiable sustained
21 operations testing.

22
23 Also, I believe that this issue was originally raised to explore the
24 viability of FPL's Perfect Execution of Peaking Operation (PEPO)
25 program. Under this program FPL has increased the peak loading

1 capability of its fossil steam generating units by pushing them beyond
2 normal operating limits. This program seems to be successful although
3 it has increased the maintenance requirements of the units. Staff is
4 currently exploring FPL's experience with this program, whether it
5 remains prudent for FPL to continue to pursue it, and, if so, why other
6 utilities in the state are not pursuing it. One concern is that
7 increased maintenance requirements may adversely impact reliability by
8 increasing spring and fall maintenance requirements. Also, it is not
9 clear what affect the PEPO program may have on the overall life of the
10 generating units involved, which may adversely impact long term
11 reliability.

12

13 Q. Issue 5: How should individual utility's reserve margins be integrated
14 into the aggregated reserve margin for Peninsular Florida?

15 A. In order to maintain consistency with previous reports by the FRCC,
16 individual utility data should be aggregated without applying a load
17 diversity factor. Alternatively, the FRCC should amend all prior
18 studies, reports, and communications to include consistent diversity
19 factors.

20

21 Q. Issue 6: Should there be a limit on the ratio of non-firm load to MW
22 reserves?

23 A. Perhaps. However, I believe it is premature to establish a standard for
24 the ratio of non-firm load to MW reserves at this time. More study is
25 needed both on an individual utility basis and by the FRCC. This is

1 another area where I find it surprising that a Reliability Council such
2 as the FRCC has not independently addressed. Recent occurrences over
3 the last two years have shown that both load management customers and
4 interruptible customers are sensitive to the frequency and duration of
5 controlled outages. These concerns are only aggravated by the adoption
6 of unrealistically low reserve margins.
7

8 Q. Issue 7: Should there be a minimum of supply-side resources when
9 determining reserve margins? If so, what is the appropriate minimum
10 level?

11 A. I believe I have addressed this in my response to Issue 6. I would like
12 to add, however, that supply-side resources have certain advantages over
13 non-firm demand-side resources. Supply-side resources are dispatchable.
14 They may be used to serve both native retail load and, through wholesale
15 sales, the retail loads of other utilities. Where such capacity is
16 available on one utility's system, it may be sold to another utility
17 which is facing tight generating capacity. This may reduce
18 interruptions to interruptible customers by enhancing the availability
19 of buy-through capacity. It is not clear whether the lost revenues
20 associated with these potential sales has been considered in the cost-
21 effectiveness tests used to justify the addition of non-firm demand-side
22 resources. The Commission may wish to consider this in other
23 proceedings such as conservation program approval dockets or the
24 Conservation Cost Recovery Clause.
25

1 Q. Issue 8: What, if any, planning criteria should be used to assess the
2 generation adequacy of individual utilities?

3 A. As I have stated, until such time as demonstrated otherwise on a case-
4 by-case basis, the suitability of each peninsular Florida utility's Ten-
5 Year Site Plan should be judged based on a 20 percent reserve margin.
6 Again, I would take into consideration the potential contribution of
7 non-committed capacity if the FRCC and individual utilities were to
8 credibly quantify the availability of non-committed capacity being
9 developed in Florida.

10

11 Q. Issue 9: Should the import capability of Peninsular Florida be
12 accounted for in measuring and evaluating reserve margins and other
13 reliability criteria, both for individual utilities and for Peninsular
14 Florida?

15 A. Yes. Clearly, firm purchases and the transport of capacity from FPL's
16 Scherer unit should be accounted for. Also, to the extent that non-
17 committed capacity exists in the Southern Company and other regions and
18 is consistently available in Florida, the FRCC and individual utilities
19 should evaluate its potential impact on the adequacy of the Peninsular
20 Florida grid.

21

22 Q. Issue 10: Do the utilities (listed in the Prehearing Order)
23 appropriately account for historical winter and summer temperatures when
24 forecasting seasonal peak loads for purposes of establishing a percent
25 reserve margin planning criterion?

1 | A. No. My recommendation of a 20 percent reserve margin is based on the
2 | concern that utilities are not giving enough weight to the potential
3 | adverse affects of weather on their generation planning.
4 |
5 | Q. Issue 11: Has the Florida Reliability Coordinating Council's 15 percent
6 | reserve margin planning criterion, or any other proposed reserve margin
7 | criterion, been adequately tested to warrant using it as a planning
8 | criterion for the review of generation adequacy on a Peninsula Florida
9 | basis? If the answer is no, what planning criterion should be used?
10 | A. No. Based on the analyses performed by Mr. Ballinger, I believe that
11 | the Commission should utilize a summer and winter peak reserve margin
12 | of 20 percent for Peninsular Florida. This 20 percent reserve margin
13 | should be calculated based on the simple aggregation of each individual
14 | utility's reserves and seasonal peak load without discounting for
15 | peninsular diversity.
16 |
17 | Q. Issue 12: What percent reserve margin is currently planned for each of
18 | the following utilities (listed in the Prehearing Order) and is it
19 | sufficient to provide an adequate and reliable source of energy for
20 | operational and emergency purposes in Florida?
21 | A. The percent summer and winter reserve margins currently planned for each
22 | Peninsular Florida utility are shown in Exhibit ____ (RLT-2).
23 |
24 | Gainesville Regional Utilities and Orlando Utilities Commission are the
25 | only two utilities in Peninsular Florida which are planning to maintain

1 reserve margins at or above 20 percent for each summer and winter peak
2 of the planning period. I would recommend that the Ten-Year Site Plans
3 of Gainesville and Orlando are "suitable" for planning purposes.
4 Because none of the remaining Peninsular Florida utilities are planning
5 to maintain reserve margins at or above 20 percent for each summer and
6 winter peak of the planning period, I would recommend that their Ten-
7 Year Site Plans are "unsuitable" for planning purposes.
8

9 Q. Issue 13: How does the reliability criteria adopted by the FRCC compare
10 to the reliability criteria adopted by other reliability councils?

11 A. The FRCC's method for calculating reserve margins is similar to other
12 regions that use a reserve margin criteria. I am unable, however, to
13 compare the quality of the FRCC's resultant 15 percent reserve margin
14 criteria recommendation to the criteria adopted in other regions because
15 I do not know the full circumstances which exist in other regions. It
16 is also not clear whether Commissions in other regions have held or have
17 the same authority to hold utilities to the standard of critical review
18 that is expected in Florida. Also, because of Florida's unique
19 peninsular geography, I am unsure how to compare reserve margins in
20 other regions to those in Florida. I would note that many other regions
21 allow the construction of merchant plants which provides an added
22 cushion to their generating capacity reserves.
23

24 Q. Issue 14: Should the Commission adopt a reserve margin standard for
25 individual utilities in Florida? If so, what should be the appropriate

1 reserve margin criteria for individual utilities in Florida? Should
2 there be a transition period for utilities to meet the standard?

3 A. Until such time as demonstrated otherwise on a case-by-case basis, the
4 suitability of each peninsular Florida utility's Ten-Year Site Plan
5 should be judged based on a 20 percent reserve margin. I would take
6 into consideration the potential contribution of non-committed capacity
7 if the FRCC and individual utilities were to credibly quantify the
8 availability of non-committed capacity being developed in Florida.
9

10 Q. Issue 15: Should the Commission adopt a reserve margin for Peninsular
11 Florida? If so, what should be the appropriate reserve margin criteria
12 for Peninsular Florida?

13 A. The Commission should utilize a summer and winter peak reserve margin
14 of 20 percent for Peninsular Florida. This 20 percent reserve margin
15 should be calculated based on the simple aggregation of each individual
16 utility's reserves and seasonal peak load without discounting for
17 peninsular diversity. Further, until such time as demonstrated
18 otherwise on a case-by-case basis, the suitability of each peninsular
19 Florida utility's Ten-Year Site Plan should be judged based on this 20
20 percent reserve margin.
21

22 Because of the dynamic nature of the planning process and the need for
23 continuing critical review, the 20 percent reserve margin criteria used
24 to evaluate the suitability of the Ten-Year Site Plans should not be
25 codified into a rule at this time. Rather, the Commission should

1 continue to evaluate the reasonableness of utility reliability
2 assessments and generation resource plans using the Ten-Year Site
3 Planning process.
4
5 Q. Issue 16: Should the Commission adopt a maximum reserve margin criterion
6 or other reliability criterion for planning purposes; e.g., the level
7 of reserve necessary to avoid interrupting firm load during weather
8 conditions like those experienced on the following dates: 01/08/70,
9 01/17/77, 01/13/81, 12/19/81, 12/25/83, 01/21/85, 01/21/86, 12/23/89?
10 A. No. I am not recommending that a maximum reserve margin criterion be
11 adopted to absolutely ensure that outages do not occur during periods
12 of extremely cold weather. In recommending a 20 percent reserve margin
13 standard for the purpose of this docket, however, I have taken into
14 consideration the weather patterns and events which occurred in the past
15 in Florida. My recommendation for a 20 percent reserve margin is based
16 on the policy that the MWs of capacity unserved as a result of an
17 extreme weather event should be no greater than that experienced during
18 Christmas 1989.
19
20 During Christmas 1989, customer demand outstripped available generating
21 capacity for a three-day period beginning Saturday evening, December 23
22 and continuing through midday Monday, December 25. Rotating blackouts
23 were instituted on each of these three days resulting in a total of 569
24 MW on Saturday, 4,744 MW on Sunday, and 4,472 MW on Monday of firm load
25 not served. Prior to initiating rotating blackouts, non-firm customer

1 loads, such as interruptible, curtailable, and load management were
2 curtailed (up to 1,495 MW statewide). The utilization of a 20 percent
3 reserve margin should hold the state to this level of outages should the
4 extreme weather conditions of Christmas 1989 be repeated. It should also
5 assure that outages resulting from less extreme weather are also
6 minimized. As shown by Exhibit ___ (RLT-3), the cold temperatures
7 experienced during Christmas 1989 were more extreme than those
8 experienced on the other dates, but the pattern of extended cold
9 temperatures gripping the State for a period of days has repeated itself
10 on numerous occasions.

11
12 Q. Issue 17: What percent reserve margin is currently being planned for
13 Peninsular Florida and is it sufficient to provide an adequate and
14 reliable source of energy for operational and emergency purposes in
15 Peninsula Florida?

16 A. The aggregate percent of summer and winter reserve margins currently
17 planned for Peninsular Florida as a whole are shown in Exhibit RLT-2.

18
19 Because Peninsular Florida as a whole is not planning to maintain
20 reserve margins at or above 20 percent for each summer and winter peak
21 of the planning period, I would recommend that the aggregate Peninsular
22 Florida Ten-Year Site Plan is not "suitable" for planning purposes.

23
24 Q. Issue 18: Can out-of-Peninsular Florida power sales interfere with the
25 availability of Peninsular Florida reserve capacity to serve Peninsular

1 Florida consumers during a capacity shortage? If so, how should such
2 sales be accounted for in establishing a reserve margin standard?

3 A. I am not aware of any adverse impact to the adequacy and reliability of
4 the Peninsular Florida grid caused by power sales. If parties to this
5 case have legitimate concerns, perhaps this is another area that the
6 FRCC should evaluate.

7

8 Q. Issue 19: Based on the resolution of Issues 1 through 18, what follow-up
9 action, if any, should the Commission pursue?

10 A. Until such time as demonstrated otherwise on a case-by-case basis, the
11 suitability of each peninsular Florida utility's Ten-Year Site Plan
12 should be judged based on a 20 percent reserve margin. The potential
13 contribution of non-committed capacity should be considered in the
14 calculation of individual utility reserve margins if the FRCC and
15 individual utilities credibly quantify the availability of merchant
16 plant capacity being developed in Florida.

17

18 Because of the dynamic nature of the planning process and the need for
19 continuing critical review, the 20 percent reserve margin criteria used
20 to evaluate the suitability of the Ten-Year Site Plans should not be
21 codified into a rule at this time. Rather, the Commission should
22 continue to evaluate the reasonableness of utility reliability
23 assessments, generation resource plans, and the analytical techniques
24 used year by year in the Ten-Year Site Planning process.

25

1 | Q. Does this conclude your testimony?
2 | A. Yes, it does.
3 |
4 |
5 |
6 |
7 |
8 |
9 |
10 |
11 |
12 |
13 |
14 |
15 |
16 |
17 |
18 |
19 |
20 |
21 |
22 |
23 |
24 |
25 |

Table 1
Summer Peak Load

Percent Reserve Margin	Number of Capacity Alerts During 1998 and 1999
15%	5
16%	2
17%	1
18%	0
19%	0
20%	0

Table 2
Winter Peak Load

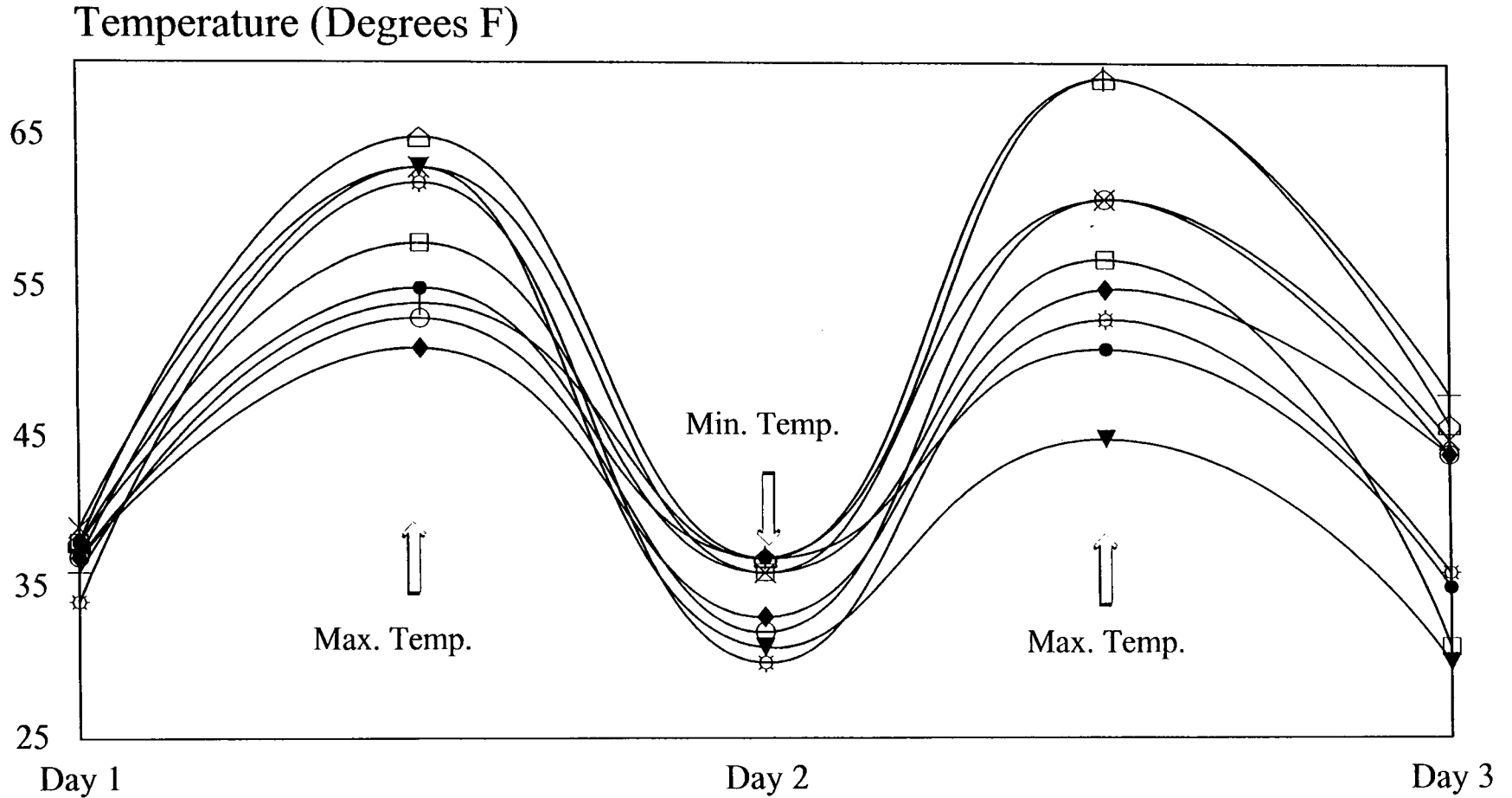
Estimated Capacity Shortage As a Percent of the Christmas 1989 Capacity Shortage

Percent Reserve Margin	With Maintenance	Without Maintenance
15%	136%	79%
16%	129%	71%
17%	122%	64%
18%	114%	57%
19%	106%	49%
20%	99%	42%

PLANNED <u>SUMMER</u> RESERVE MARGINS (%)										
Utility	Year									
	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
City of Homestead	?	?	?	?	?	?	?	?	?	?
City of Lake Worth	?	?	?	?	?	?	?	?	?	?
City of Lakeland	57	52	25	45	26	48	45	42	39	37
City of Tallahassee	17	34	31	23	21	19	17	15	13	9
Florida Power & Light	16.1	15.4	16.1	20.3	22.8	20.8	18.9	18.6	19.0	19.5
Florida Power Corporation	16	18	17	19	25	21	23	19	22	18
Florida Municipal Power Agency	25	21	20	18	18	18	18	18	18	18
Gainesville Regional Utilities	21	36	47	43	40	37	34	31	29	26
Jacksonville Electric Authority	15	15	15	20	18	16	18	15	17	15
Kissimmee Utility Authority	18	18	40	29	21	50	42	?	?	?
Orlando Utilities Commission	34	38.1	42.5	27.3	27.2	27.0	31.6	42.0	40.0	36.6
Reedy Creek Improvement District	?	?	?	?	?	?	?	?	?	?
Seminole Electric Cooperative	19.2	20.6	26.5	26.1	22.9	21.7	23.3	24.3	25.3	26.2
Tampa Electric Company	15	15	19	16	15	17	18	15	16	17
Utilities Commission of New Smyrna Beach	?	?	?	?	?	?	?	?	?	?
FRCC Region	17	16	18	20	20	19	18	17	18	17

PLANNED <u>WINTER</u> RESERVE MARGINS (%)											
Utility	Year										
	98/99	99/00	00/01	01/02	02/03	03/04	04/05	05/06	06/07	07/08	08/09
City of Homestead	?	?	?	?	?	?	?	?	?	?	?
City of Lake Worth	?	?	?	?	?	?	?	?	?	?	?
City of Lakeland	14	42	30	33	16	48	29	26	22	20	?
City of Tallahassee	26	18	51	47	39	37	34	32	29	26	?
Florida Power & Light	20.3	18.7	17.7	21.8	24.5	22.1	19.8	19.4	19.7	19.9	?
Florida Power Corporation	?	16	17	18	24	20	22	19	23	20	17
Florida Municipal Power Agency	?	21	20	16	15	15	15	15	15	15	?
Gainesville Regional Utilities	60	70	82	77	73	68	64	60	56	52	?
Jacksonville Electric Authority	18	15	20	15	22	18	17	20	16	19	?
Kissimmee Utility Authority	30	30	15	43	34	21	56	?	?	?	?
Orlando Utilities Commission	35.2	37.9	44.2	29.4	27.8	29.7	34.6	45.3	43.5	40.1	?
Reedy Creek Improvement District	?	?	?	?	?	?	?	?	?	?	?
Seminole Electric Cooperative	21.1	19.8	21.0	22.8	18.2	21.3	17.8	18.4	19.1	19.5	?
Tampa Electric Company	19	15	15	16	16	17	19	16	18	19	?
Utilities Commission of New Smyrna Beach	?	?	?	?	?	?	?	?	?	?	?
FRCC Region	?	16	18	20	21	19	19	18	18	18	15

Miami Temperature Profiles for Historical Low Temperature Periods



- | | | |
|-----------------------|------------------------|------------------------|
| ● January 8-10, 1970 | ◻ January 17-19, 1977 | ○ January 12-14, 1981 |
| ◻ January 18-20, 1981 | ⊗ December 19-21, 1981 | ◆ December 25-27, 1983 |
| ⊕ January 21-23, 1985 | + January 28-30, 1986 | ▼ December 23-25, 1989 |