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September 27, 1999

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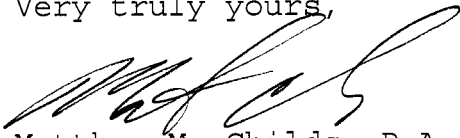
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Ms. Blanca S. Bayó, Director
Division of Records and Reporting
Florida Public Service Commission
4075 Esplanade Way, Room 110
Tallahassee, FL 32399

RE: DOCKET NO. 981890-EU

Dear Ms. Bayó:

Enclosed for filing please find an original and fifteen(15) copies of Florida Power & Light Company's Rebuttal Testimony of Roberto R. Denis in the above referenced docket.

Very truly yours,

Matthew M. Childs, P.A.

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cc: All Parties of Record

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11657 SEP 27 99

CERTIFICATE OF SERVICE
DOCKET NO. 981890-EU

I HEREBY CERTIFY that a true and correct copy of Florida Power & Light Company's Rebuttal Testimony of Roberto R. Denis has been furnished by Hand Delivery*, U.S. Mail this 27th day of September, 1999 to the following:

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By: 
Matthew M. Childs, P.A.

**BEFORE THE FLORIDA
PUBLIC SERVICE COMMISSION**

ORIGINAL

**DOCKET NO. 981890-EU
FLORIDA POWER & LIGHT COMPANY**

**GENERIC INVESTIGATION INTO
THE AGGREGATE UTILITY RESERVE MARGINS
PLANNED FOR PENINSULAR FLORIDA**

REBUTTAL TESTIMONY & EXHIBITS OF:

ROBERTO R. DENIS

DOCUMENT NUMBER-DATE

11657 SEP 27 88

FPSC-RECORDS/REPORTING

1 **BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION**
2 **FLORIDA POWER & LIGHT COMPANY**
3 **SECOND REBUTTAL TESTIMONY OF ROBERTO R. DENIS**
4 **DOCKET NO. 981890-EU**
5 **SEPTEMBER 27, 1999**

6
7

8 **Q. Please state your name and business address.**

9

10 A. My name is Roberto Denis and my business address is 9250 West Flagler
11 Street, Miami, Florida 33174.

12

13 **Q. Have you previously testified in this docket?**

14

15 A. Yes.

16

17 **Q. What is the purpose of your rebuttal testimony?**

18

19 A. I have previously filed testimony in rebuttal of Mr. Slater, the witness for the
20 Duke entities, in accordance with the pre-hearing order in this docket. This
21 rebuttal testimony responds to the testimony of the Staff witnesses, Mr.
22 Ballinger and Mr. Trapp. While I address a number of specific observations
23 of their testimony, my rebuttal testimony has six major points.

1 First, Staff's exercise of looking at historic projections of reserve margins
2 over time rather than looking at reliability criteria used for planning is
3 misleading. It ignores the historic reasons that past projections of reserve
4 margins have been above reserve margin criteria, and it fails to recognize
5 years of Commission practice that have approved reliability criteria that are
6 consistent with the 15% minimum reserve margin criterion that the Florida
7 Reliability Coordinating Council (FRCC) has employed for the last two years.

8
9 Second, Staff's analysis and conclusions regarding the FRCC's 15% reserve
10 margin are flawed. The analysis fails to demonstrate either that the 15%
11 minimum reserve margin proposed for Peninsular Florida by the FRCC is
12 inappropriate or why a 20% reserve margin criterion proposed by Staff is
13 appropriate.

14
15 Third, Staff's testimony and focus on reserve margin fails to acknowledge the
16 reliability of Peninsular Florida system as measured by Loss-of-Load
17 Probability (LOLP). Staff's dismissal of LOLP appears to be based solely on
18 disagreement with the outcome of recent LOLP analyses performed for
19 Peninsular Florida. While Staff questions projected unit availability rates, the
20 rates used are consistent with recent experience. Staff's rejection of the
21 LOLP studies is therefore arbitrary and unreasonable. The Commission has
22 long recognized use of LOLP to measure supply adequacy for Peninsular
23 Florida, and Staff's suggestion that the Commission adopt a reserve margin
24 criterion without consideration of LOLP fails to recognize the reliability of the
25 Peninsular Florida system.

1 Fourth, Staff's suggestion that reliance upon non-committed capacity to
2 achieve reserve margin criteria is a departure from years of Commission
3 practice that would damage rather than enhance reliability. The Commission
4 has never required utilities to replace firm resources with non-firm resources,
5 though the state has had these resources available for many years.

6
7 Fifth, Staff's suggestion that a one-size-fits-all reliability standard should be
8 adopted for Peninsular Florida and individual utilities fails to recognize the
9 varying degrees of reliability among the numerous systems that comprise
10 Peninsular Florida and advances a concept of central planning that the
11 Commission should reject. If there are reliability problems within the State
12 of Florida, they are first and foremost individual utility problems that must be
13 addressed at an individual utility level. For much the same reason a single
14 standard should not be applied in judging individual utilities' Ten-Year Site
15 Plans.

16
17 Sixth, it is inappropriate for the Commission to adopt in this proceeding a
18 policy, creation of a 20% reserve margin criterion, and apply it retroactively
19 to assess the suitability of Ten-Year Site Plans filed when there was no such
20 policy in place and when prior Commission practice was consistent with the
21 use of planning criteria utilized by individual utilities. The unfairness of
22 Staff's recommendation should be readily apparent to the Commission.

1 **Q. Are you sponsoring any exhibits?**

2

3 **A. Yes. My exhibit consists of the following document:**

4

5 Document No. RRD-2: Commission Approved Reliability Criteria

6

7 **Q. Before continuing, do you have any general concerns with this**
8 **proceeding?**

9

10 **A. Yes. The testimony presented by Staff's witnesses reinforces FPL's**
11 **concerns about the type of proceeding we are involved in and whether or not**
12 **the results will have any binding impact on FPL and its customers. FPL has**
13 **stated its concerns on several occasions about these issues. What began**
14 **as a generic investigation into reserve margin methodology has become a**
15 **proceeding to determine and enforce a new reserve margin standard.**

16

17 Let me be clear in stating FPL's position one more time. FPL does not
18 question the Commission's authority to investigate these issues, nor do we
19 seek to limit or impede the Staff's ability to carry out any directive from the
20 Commission.

21

22 However, a generic investigation, such as this docket, is not intended in my
23 opinion, to determine guilt or innocence, but rather to educate the
24 Commission on issues the Commission has identified to be of interest. What
25 concerns us here is process, not authority. If the Commission wishes, after

1 considering all of the information presented, to initiate a rulemaking to
2 establish a reserve margin standard, that is certainly within the Commission's
3 discretion.

4
5 Aside from the general process concerns, I am also disturbed by the
6 introduction of issues which are only peripherally related to reserve margin
7 methodology, and the participation in this proceeding by entities which are
8 not regulated utilities who will be required to comply with the outcome, nor
9 will be substantially affected in any way. The issues related to merchant
10 plants, which were supposed to be the subject of a separate investigation as
11 I understand it, have not only been reintroduced in this proceeding, but seem
12 to be influencing some of the recommendations. This generic investigation
13 has expanded in scope well beyond what is necessary to fill the
14 Commission's needs for information.

15
16 In summary, I believe this investigation is inappropriately directed at
17 enforcing a yet-to-be identified standard, overly broad in its scope, and I
18 would go so far to say that what we have here is a solution in search of a
19 problem. Nevertheless, I will address the specific factual allegations raised
20 in Staff's testimony.

1 I. **Staff's Misleading Failure to Distinguish Historic Projections of Reserve**
2 **Margin Levels from Reserve Margin Criteria, Their Failure to**
3 **Acknowledge Improved System Reliability and the Reliability Standards**
4 **That Have Withstood the Test of Time.**

5
6
7 Q. **On pages 4 and 5 of his direct testimony, Mr. Ballinger reports a decline**
8 **in utility "planned reserve margins for Peninsular Florida", discusses**
9 **his perception of the driving forces behind the trend, and then**
10 **concludes with the observation that "caution should be taken before**
11 **adopting any reliability standard that has not withstood the rigors of**
12 **time testing." What is your response?**

13
14 A. I have two points I would like to make. First, Mr. Ballinger fails to explore the
15 reasons underlying the apparent "decline" in planned reserve margins. Had
16 he done so, he would have discovered that historic projections of reserve
17 margins did not result solely from reliability standards used in resource
18 planning. Other considerations, well known to the Commission, influenced
19 projected reserves. Second, when one considers the Commission's
20 decisions over the period 1984 through 1999, particularly the 1989 through
21 1999 period Mr. Ballinger addresses in his testimony, it is clear that a 15%
22 reserve margin criterion and a LOLP criterion of 0.1 day/year have not only
23 withstood the rigors of time testing, but also have been repeatedly approved
24 by the Commission as reasonable planning criteria.

1 Q. Please explain your observation that Mr. Ballinger fails to explore the
2 reasons underlying the apparent “decline” in planned reserve margins.

3
4 A. On page 4 of his testimony, Mr. Ballinger reports what he calls “planned
5 reserve margins” for Peninsular Florida. He goes on to recount his opinion
6 as to why the “planned” reserve margins have declined and then concludes
7 that “caution should be taken before adopting any reliability standard that has
8 not withstood the rigors of time testing”. He is confusing reserve margins
9 projections resulting from a reliability planning process with historic
10 projections of reserve margins which may have resulted from other
11 considerations in addition to reliability planning.

12
13 The “planned reserve margins” of approximately 50% he reports were not
14 reserve margins that were the product of reliability standards. At no time
15 during the period 1984 through present has any Peninsular Florida utility or
16 the FRCC or its predecessor had a 50% or even a 40% reserve margin
17 criterion. The historically high reserve margins in the mid-to-late 1980s
18 reported by Mr. Ballinger were due to other well documented factors that Mr.
19 Ballinger has ignored or overlooked. A comparison of “planned reserve
20 margins” with current reserve margin planning standards or criteria is, at
21 best, misleading when the “planned reserve margins” resulted from
22 considerations other than reliability. It makes it appear that there has been
23 a dramatic decline in the reserve margin planning standard, and that is not
24 the case.

1 Q. You stated that there were well documented factors that explain the
2 historically high reserve margins in the mid-to-late 1980s, other than
3 the factors cited by Mr. Ballinger. Please explain?

4
5 A Mr. Ballinger overlooks the fact that the high reserve margin levels of the
6 mid-to-late 1980s and early 1990s are readily attributable to two Commission
7 actions associated with the implementation of the Florida Energy Efficiency
8 and Conservation Act (FEECA): i) adoption of very aggressive, mandatory
9 conservation goals, and ii) the approval of oil backout projects. I will address
10 each, in turn.

11
12 In its implementation of FEECA in 1981, the Commission approved
13 mandatory conservation goals that required utilities to reduce demand and
14 energy by certain Commission prescribed percentages. When these
15 Commission-approved goals were factored into utilities' load forecasts, there
16 was an immediate increase in the resulting reserve margins, simply due to
17 lowered projections of firm load.

18
19 The introduction of these conservation goals resulted in some initial
20 reluctance to cancel or defer new generating units that were already planned
21 but not yet under construction. In some cases, these units remained in
22 individual electric utility plans (and were subsequently built) for reasons other
23 than reliability, with the utility's resulting reserve margin increasing.

24
25 The impact of the Commission's conservation goals on reserve margins is

1 perhaps most easily seen in two determination of need cases decided by the
2 Commission in 1981. Prior to the Commission's adoption of conservation
3 goals, both Tampa Electric Company (TECO) and Orlando Utilities
4 Commission (OUC) had been planning major coal unit additions for the mid-
5 1980s. After the Commission adopted its mandatory conservation goals, the
6 need for these plants could no longer be based on a reliability standard
7 alone. The Commission noted in TECO's Big Bend 4 decision, "achievement
8 of the conservation goals would obviate Peninsular system's need for Big
9 Bend 4 from an adequacy viewpoint." In the OUC Stanton Unit 1 case the
10 Commission noted that with the recently approved FEECA goals the unit was
11 not needed to meet a Peninsular Florida reserve margin criteria until 1992,
12 six years after its scheduled in-service date. Ultimately, the Commission
13 justified the need for these units on an immediate oil backout and fuel
14 savings rationale as well as longer term reliability needs (needs in the early
15 1990s). That leads me to the other factor that explains the high reserve
16 margin levels of the mid-to-late 1980s.

17
18 This other factor was based on another aspect of FEECA. It concerned an
19 intent to reduce reliance on foreign oil - oil backout. As a result, the
20 Commission made a concerted effort to reduce the reliance of Florida utilities
21 on foreign oil by promulgating an oil backout rule, approving a major oil
22 backout project, and approving power plant construction that was based
23 upon economic savings associated with displacing oil-generated power. This
24 policy, which promoted power plant additions not based on meeting reliability
25 criteria, also contributed to Peninsular Florida reserve margins increasing

1 dramatically to the levels reported in Mr. Ballinger's testimony.

2

3 In 1982, for example, the Commission approved the St. John's River Power
4 Park Units 1 and 2 based on oil backout. In addition, in 1982 the
5 Commission approved the construction of two 500 kV transmission lines and
6 associated coal-by-wire purchases as an oil backout project under the
7 Commission's recently adopted oil backout rule. The Commission
8 acknowledged that the projects would increase reliability but stated that their
9 primary purpose was oil backout.

10

11 When the combined capacity of these four coal units, 2,200 MW and the
12 coal-by-wire purchases of approximately 2,600 MW, were reflected in
13 Peninsular Florida's reserve margins (reserve margins that were already
14 inflated by Commission mandated conservation goals) in the mid-to-late
15 1980s, the resulting reserve margins were quite large. However, it would be
16 misleading to suggest that these resulting reserve margins were the product
17 of reserve margin or planning standards which were then in place.

18

19 For FPL, planning criteria have not declined in the 1989-to-present period
20 Mr. Ballinger discusses. In fact, FPL bolstered its planning criteria in 1997
21 when it began using a 15% Winter reserve margin in addition to its 15%
22 Summer reserve margin criterion and its 0.1 day/year LOLP criterion.

1 Q. On Page 4 of his testimony, Mr. Ballinger suggests that reevaluated
2 maintenance procedures have led to the emergence of unprecedented
3 generating unit availabilities. He then suggests that such improved
4 availabilities have not stood the test of time and should be discounted
5 for their effect resulting in lower planned reserve margins. What is
6 your response?

7
8 A. I can only speak for FPL, but improved generating performance has been a
9 management objective, a conscious effort by FPL. Of course, that is also
10 exactly what the Commission intended when it proposed for investor-owned
11 utilities a Generating Performance Incentive Factor (GPIF) almost twenty
12 years ago. It was adopted to provide utilities an incentive to improve their
13 generating performance, including their unit availabilities. Not surprisingly,
14 that is exactly what has happened and continues to happen. The factor is
15 designed to provide a reward for improved unit performance and to penalize
16 unit performance that does not exceed prior performance.

17
18 Because FPL has higher unit availability in 1999 than in 1989, FPL's system
19 and Peninsular Florida's systems are more reliable. Fewer outages of
20 shorter duration mean that units are available more of the time to meet
21 system requirements. The impact of improved unit availability is directly
22 captured in FPL's other reliability methodology: LOLP. Its impact on the
23 LOLP factor has been dramatic, driving the value well below the standard of
24 0.1 days/year. Ignoring the favorable impact of improved unit availabilities
25 on system reliability, as Mr. Ballinger and Mr. Trapp suggest in promoting a

1 higher reserve margin standard, in effect denies FPL's customers the
2 savings that result from that improvement.

3

4 **Q. Mr. Ballinger cautions about adopting a reliability standard that has not**
5 **withstood the rigors of time testing. What reliability criteria have**
6 **withstood the rigors of time testing since 1989?**

7

8 A. Looking to Commission orders where the Commission has had occasion to
9 review and approve reliability criteria since 1989, I conclude that there are
10 two reliability criteria that have withstood the rigors of time testing and
11 Commission review: a minimum reserve margin of 15% and a Loss of Load
12 Probability of 0.1 days/year.

13

14 In the last decade the Commission, in a variety of cases, has reviewed and
15 based some aspect of its decision on reliability criteria on at least twenty-two
16 occasions. Attached to my testimony is Document No. RRD-2, which
17 summarizes those decisions. As you can see, in nineteen of the twenty-two
18 decisions the Commission approved or relied upon a reserve margin
19 criterion. In fifteen of those nineteen decisions the Commission approved a
20 reserve margin criterion of 15% (and in one case the Commission approved
21 a reserve margin criterion as low as 10%). Indeed, in 1996 the Commission
22 even adopted a rule that embraces a 15% reserve margin criterion. The
23 Commission's most recent approval of a 15% reserve margin criterion was
24 in May of this year.

1 In addition to addressing reserve margin, in eleven of those decisions, the
2 Commission also approved a LOLP of 0.1 day/year as an appropriate
3 reliability criterion. Not once in the last ten years has the Commission
4 approved a LOLP standard of other than 0.1 day/year.

5
6 Adopting a reserve margin standard of 20% would deviate significantly from
7 prior Commission practice in the majority of cases decided in the last ten
8 years. A 20% standard has been approved only four times in the last
9 decade, and in each instance it was for a relatively small utility compared to
10 the size of Peninsular Florida. In fact, on at least one occasion the
11 Commission observed that its approval of the 20% reserve margin was
12 related to the size of the utility. In TECO's 1992 IGCC need case the
13 Commission noted that its 20% "winter reserve margin is a reasonable one
14 for a utility of Tampa Electric's size."

15
16
17 **II. Staff's Analysis of the FRCC's Reserve Margin Assessment is Flawed.**

18
19
20 **Q. What conclusions did Staff's draw from their analysis of the FRCC's**
21 **assessment of its 15% reserve margin last year?**

22
23 **A.** In response to the 1998 FRCC's Assessment of the 15% reserve margin, the
24 Staff performed an analysis to assess the adequacy of the FRCC 15%
25 reliability standard.

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Staff arrived at the following conclusions from its analysis:

The FRCC Load and Resource Plan summer reserves were found to be adequate for the entire 10-year horizon.

Generating capacity may be inadequate during the 1999/2000 and 2000/2001 Winter seasons.

In fact, Staff suggested there was only a 6% probability that Peninsular Florida could be short by 955 MW for the Winter of 1999/2000. For the Winter of 2000/2001 there was an 8.3% probability the Peninsular Florida could be short as much as 1041 MW.

Q. What conclusions do you draw from your review of the Staff's critique of the FRCC's assessment of its 15% reserve margin criterion in 1998?

A. First, Staff's conclusions last year bear remembering. The only problem that Staff identified was a near-term Winter-only problem in two specific years. No problem was identified with Summer reserve margins. There was no long-term reliability problem, and there was no proposed 20% reserve margin standard.

Second, even the above-mentioned conclusion of only a two-year Winter potential problem is overstated, since Staff's analysis of the FRCC's assessment of its 15% reserve margin standard was flawed in a manner that made its results too pessimistic. (Mr. Villar's rebuttal testimony addresses the studies performed by FRCC in an attempt to correct the flaws in Staff's

1 analysis.)

2

3 As flawed as it was, Staff's analysis still shows that there is a greater than
4 90% probability that no problem will occur even in those two Winters. When
5 Staff's analysis is corrected to account for its flaws, there was not even a
6 short term reliability problem based upon the 1998 Ten-Year Site Plans.

7

8 Third, Staff did not recommend a new reliability standard as a result of its
9 analysis last year. Even though it had concerns about the Ten-Year Site
10 Plans submitted as well as the FRCC's 15% reserve margin criterion, the
11 concerns were not serious enough to warrant the adoption of a new and
12 different reliability standard.

13

14 **Q. In his testimony Mr. Ballinger has offered an entirely new critique of the**
15 **FRCC's assessment of its 15% reserve margin criterion. Please explain**
16 **why you think his critique is flawed?**

17

18 A. Mr. Ballinger begins his critique (starting on page 6 of his testimony) with
19 three "shortcomings" about the FRCC's assessment: load diversity, off-peak
20 periods, and load forecast error rates. I will address each in turn.

21

22 Mr. Ballinger takes the position that instead of using coincident load data to
23 measure reserve margin the FRCC should use non-coincident load data is
24 unsound.

1 Peninsular Florida is comprised of numerous utilities which have different
2 customer mixes and are geographically spread over 400 miles. These
3 individual systems do not experience their peak demand at the same time.
4 It would be illogical to expect that weather patterns, a large driver of peak
5 load, would drive utility loads over such a large area to simultaneous peaks.
6 The FRCC's refinement in 1999 of applying a diversity factor in its testing of
7 the suitability of its 15% reserve margin standard is appropriate. It reflects
8 reality and proper planning.

9
10 **Q. Mr. Ballinger also takes issue with the FRCC using peak periods to**
11 **measure reserve margins and advocates, on page 7 of his testimony,**
12 **that the FRCC should also measure reserve margins in off-peak**
13 **periods. Please respond.**

14
15 **A.** In Florida, the Winter peak typically occurs in December or January.
16 Summer peaks generally occur in the June through September period. The
17 remaining six months, generally considered to be "shoulder" or off-peak
18 months, are typically when utilities plan outages of their units for
19 maintenance. Since maintenance scheduling is a manageable activity with
20 a short-term (less than 1 year) horizon, it is a short-term or operational
21 concern not a long-term planning concern. It would make no sense to
22 project or consider reserve margins for off-peak months beyond one year in
23 the future, and even for the near-term, utilities can manage the reserve
24 margins at any point in time by managing maintenance schedules. When
25 the FRCC analyzed the reasonableness of 15% reserve margin criterion, it

1 appropriately ignored system peaks occurring in off-peak months when a
2 number of units were on maintenance, because these "peaks" resulted from
3 mild weather. If a problem occurs in an off-peak month, it is more
4 appropriately addressed by short-term planning, e.g. managing planned
5 outages, not as part of a long-term planning process intended to identify the
6 need for new capacity.

7
8 **Q. Mr. Ballinger's third observation regarding the FRCC's reserve margin**
9 **assessment is found on page 8 of his testimony and states that the**
10 **FRCC used a simple average of load forecast error rates and that**
11 **allowing over-and under-forecast rates to net out each other**
12 **understates the load forecast error. Please respond.**

13
14 **A.** Mr. Ballinger's observation was based on only a selected portion of the
15 FRCC's work. In both its 1998 and 1999 analyses of the suitability of its 15%
16 reserve margin standard, the FRCC used both a simple averaging approach
17 recognized by Mr. Ballinger and a "worst case" approach which Mr. Ballinger
18 did not recognize. The simple averaging approach to load forecast errors did
19 allow over- and under- forecasts to net out against each other. This was not
20 done to understate the load forecast error, but rather to give a true picture of
21 what actual loads, on average, were being experienced. This approach
22 properly balances system reliability vs. cost by recognizing that over
23 forecasting can lead to overbuilding, and thus higher costs, as surely as
24 under forecasting can have an effect on ratepayers.

1 The FRCC's use of the worst case load forecast was designed to give the
2 FRCC a projection of "needed" reserves if the worst accuracy levels of recent
3 load forecasts were to recur. Use of the worst case forecast resulted in a
4 finding that, even in the very unlikely case in which the recent historical worst
5 forecast accuracy levels occur every year for the next 10 years, no action by
6 Peninsular Florida utilities is now necessary.

7
8 **Q. Mr. Trapp states that his 20% reserve margin criterion is based upon**
9 **the analyses performed by Mr. Ballinger. What is your response?**

10
11 **A.** Mr. Trapp's 20% reserve margin recommendation and Mr. Ballinger's
12 supporting analyses are flawed. Mr. Villar is addressing the flaws with Mr.
13 Ballinger's Exhibit ____ (TEB-3), so I will focus on Mr. Ballinger's
14 Exhibit ____ (TEB-2).

15
16 First, it should be noted that not even Mr. Ballinger suggests that his analysis
17 supports on (TEB-2) a 20% reserve margin standard as proposed by Mr.
18 Trapp. Second, the analysis confuses operating reserves with reserve
19 margins. Third, the simple response is that if utilities had reserve margins
20 as low as 15%, they would plan their maintenance differently to be able to
21 meet their operating reserve margin requirement. I do not believe this
22 analysis shows the Commission that more than a 15% reserve margin
23 standard is reasonable or necessary.

24
25 Consider Mr. Ballinger's starting point – he examines capacity advisories

1 issued during 1998 and 1999. Under the extreme weather plan implemented
2 pursuant to the Commission's extreme weather rule, capacity advisories are
3 the first of three reactions available to Peninsula Florida utilities to meet
4 extreme weather conditions. The other two more elevated status situations
5 are alerts and emergencies. In 1998 Mr. Ballinger shows 12 capacity
6 advisories. In 1999 year to date Mr. Ballinger shows 9 capacity advisories.
7 Now, consider that the triggers for advisories are either forecasted extreme
8 temperatures or any individual utility making a public appeal for its customers
9 to conserve. This is the lowest level of notice in the current emergency plan,
10 and it does not equate to a capacity shortfall in Peninsular Florida. Dealing
11 with advisories merely means an efficient management of available
12 resources when extreme weather threatens.

13
14 What Mr. Ballinger's exhibit shows is that Peninsula Florida, despite a very
15 hot 1998 and an unprecedented natural gas pipeline interruption, has
16 experienced the mildest status of notice only 21 days during the course of
17 the roughly 630 days during the period examined. That is a low incidence of
18 advisories.

19
20 Only once does Mr. Ballinger show that the operating reserve margin was not
21 met. Once again, that is an extremely low level of incidence during the
22 period examined. Even in that one instance, that does not mean there was
23 a service interruption. That means the operating reserve was slightly below
24 the prescribed level. That does not even mean that there would have been
25 service interruptions if the largest unit on the system had tripped. There were

1 other resources available that could have been implemented before a service
2 interruption occurred.

3
4 Mr. Ballinger then lowers actual operating reserves by the difference
5 between the planned reserve margin and either a 15% or 16% reserve
6 margin to determine how often the operating reserve margin would have
7 been violated. I have several observations. First, even then there would
8 have been a low incidence of the operating reserve margin having been
9 violated – 2 to 5 times in 630 days. Second, nothing can be concluded from
10 the exhibit, because it is unreasonable to assume that utilities would plan
11 their maintenance the same way they did with a 15 or 16% reserve margin
12 as they did with a 17-19% reserve margin. Third, it fails to show the
13 operational measures available to avoid service interruptions if the largest
14 unit tripped off-line. Fourth, it fails to address the probability of the largest
15 unit tripping off-line coincident with the other extremes Mr. Ballinger posits.
16 Finally, it shows that the extreme weather operational plan developed at the
17 instruction of the Commission to address extreme weather circumstances is
18 working as intended. There is not now, as there was not when the
19 Commission decided to require a plan, a need to build new capacity to
20 address weather extremes.

1 **III. Staff Fails to Acknowledge the Reliability of the Peninsular Florida**
2 **System as Measured by Loss Of Load Probability.**

3
4
5 **Q. Please explain your earlier observation that Staff's testimony fails to**
6 **acknowledge the reliability of Peninsular Florida as measured by Loss**
7 **of Load Probability?**

8
9 A. I am quite concerned that Staff's testimony and recommendations fail to
10 meaningfully discuss reliability as measured by Loss of Load Probability. Mr.
11 Ballinger makes a few passing references to LOLP, but quickly moves
12 beyond it after mentioning the impact of generating unit availability on LOLP,
13 leaving the erroneous impression that LOLP is no longer a valid measure of
14 reliability. Mr. Trapp, in making a recommendation of a 20% reserve margin
15 criterion, appears to ignore LOLP and the reliability of the Peninsular Florida
16 system as measured by LOLP.

17
18 In 1997, and again in 1998, the FRCC performed LOLP reliability
19 assessments for Peninsular Florida. The LOLP analyses show that
20 Peninsular Florida is a most reliable system and that it would continue to be
21 reliable with the resource plan developed while utilizing the 15% reserve
22 margin standard adopted by the FRCC.

1 Q. Please explain the LOLP approach and how it is used to measure
2 reliability?

3

4 A. LOLP analyses are probabilistic analyses performed on computer models
5 that measure the probability that load will exceed available generation on an
6 electric system. The analyses are far more refined than reserve margin
7 analyses. LOLP analyses take into account a number of factors that reserve
8 margin calculations cannot reflect, such as: scheduled and forced outages,
9 assistance from interconnected utilities, hourly peak demands, seasonal
10 capabilities of generating units, and seasonal capabilities of DSM.

11

12 The end product of a LOLP assessment is an expected value of the number
13 of times that load will exceed available generation in a given system over a
14 time horizon. The generally accepted standard of LOLP reliability within the
15 industry is 0.1 days/year. LOLP values lower than this suggest that a system
16 is reliable, and values above this level suggest that a closer look needs to be
17 taken at reliability.

18

19 Q. Do you believe the Commission should continue to recognize LOLP as
20 one measure of system reliability?

21

22 A. Yes. LOLP is still a valid method of measuring system reliability. That is why
23 FPL continues to use dual reliability criteria of 15% Summer and Winter
24 minimum reserve margins and an LOLP of 0.1 day/year. Moreover, what the
25 Commission said in 1981 about the value of analyzing Peninsular Florida

1 reliability through LOLP remains true today:

2
3 In addition to capacity sufficient to meet system peak demand,
4 an electric utility must maintain reserve capacity sufficient to
5 cover scheduled and forced outages. The amount of reserve
6 capacity required by an electric utility is a function of many
7 factors, including but not limited to system generation mix, unit
8 forced outage rates, unit sizes, maintenance cycles, peak and
9 off peak demands, and transmission tie dependency. On a
10 complex system such as Peninsular Florida, which has over
11 two hundred generating units ranging from 0.1 megawatts to
12 over 800 megawatts, generation adequacy must be evaluated
13 by probabilistic loss of load probability (LOLP techniques which
14 take into account numerous factors. An LOLP index of 0.1
15 days per year for firm load has generally been accepted by the
16 electric utility industry as the goal of generation expansion
17 planning. (Order No. 9749).

18
19 Staff's failure to acknowledge either the continuing value of LOLP analysis
20 or the reliability of Peninsular Florida as measured by LOLP makes Mr.
21 Trapp's recommendation of a 20% reserve margin criterion inappropriate, as
22 Florida's electric system is highly reliable at a 15% reserve margin.

1 **IV. Mr. Trapp's Recommendation that Non-Committed Capacity be**
2 **Recognized in the Computation of Reserve Margins is Inconsistent with**
3 **Prior Commission Practice and Would Damage Rather than Enhance**
4 **Reliability.**

5
6
7 **Q. What do you understand Mr. Trapp's position to be regarding whether**
8 **non-committed capacity should be recognized in the calculation of**
9 **reserve margins?**

10
11 A. On page 19 of his testimony, Mr. Trapp suggests that the potential
12 contribution of non-committed capacity should be considered in the
13 calculation of individual utility reserve margins if the FRCC and individual
14 utilities credibly quantify the availability of merchant plant capacity being
15 developed in Florida.

16
17 He also states that he is not troubled by recognizing merchant capacity that
18 is "planned and certified." However, he then has a discussion of 2500 MW
19 of merchant capacity that is scheduled to be placed in-service and is not
20 subject to a determination of need. Since there is no listing of the projects
21 comprising Mr. Trapp's 2500 MW and Mr. Trapp has testified the projects
22 require no determination of need, it is difficult to discern whether these
23 projects fit his criteria of "planned and certified."

1 Q. Why do you believe that Mr. Trapp's observations regarding the
2 recognition of non-committed capacity in reserve margin are
3 inconsistent with prior Commission practice?
4

5 A. For years the Commission has dealt with the issue of utility reliance upon
6 non-committed capacity and related issues. The Commission has
7 consistently determined that non-committed capacity should not be treated
8 as firm capacity, declining to recognize non-committed capacity in the
9 computation of reserve margins and declining to require utilities to make
10 capacity payments to Qualifying Facilities (QFs) for as-available energy.
11

12 Three prior Commission decisions evidence the Commission's prior practice
13 of not recognizing non-committed capacity in reserve margin calculations.
14 Those three cases are the Dade County Resource Facility expansion
15 determination of need, the Commission's reserve margin rulemaking, and the
16 recent Duke New Smyrna determination of need proceeding.
17

18 Q. What did the Commission have to say about the contribution of non-
19 firm generating resources to system reliability and the proper
20 calculation of reserve margins in the Dade County case?
21

22 A. In the Dade County Resource Recovery Facility's determination of need, the
23 facility did not have a firm contract to sell its output, making it an
24 uncommitted capacity resource; the Commission had this to say about its
25 potential contribution to reliability:

1 We find that Dade County's expanded solid waste facility will
2 not contribute to the reliability and integrity of the state's
3 electric system. Dade County has not committed to sell firm
4 capacity pursuant to a Commission-approved contract. Dade
5 County has only stated that it might sell as-available energy
6 from its expanded facility. Because there are no plans to sell
7 firm capacity, there is no way to analyze any effect on the
8 state's reliability and integrity due to Dade County's energy
9 sales. (Order No. PSC-93-1715-FOF-EQ).

10
11 The Commission went on to state the following about the proper calculation
12 of reserve margins:

13
14 Because there is no firm capacity commitment, the only
15 consequence to FPL is that its customers will not receive any
16 as-available energy from Dade County if the facility expansion
17 is not complete. A utility's reserve margin is calculated using
18 only firm capacity sources. (Order No. PSC-93-1715-FOF-EQ).

19
20 **Q. What did the Commission say about the recognition of uncommitted**
21 **capacity resources in reserve margin calculations in the reserve margin**
22 **rulemaking docket?**

23
24 **A.** In the Commission's reserve margin rulemaking proceeding, the Commission
25 adopted a reserve margin standard of 15% ("to achieve an equitable sharing

1 of energy reserves, Peninsular Florida utilities shall be required to maintain,
2 at a minimum, a 15% planned reserve margin”) and adopted a rule provision
3 that only firm power purchases were to be recognized in calculating reserve
4 margins absent a waiver. (Order No. PSC-96-1076-FOF-EU). That rule
5 provision provides:

6
7 (2) Treatment of Purchased Power. Only firm purchase power
8 agreements may be included as a resource for purposes of
9 calculating a planned or operating reserve. A utility may
10 petition for a waiver of this requirement based on a very high
11 availability of specific non-firm purchases. Rule 25-6.035(2).

12
13 **Q. What did the Commission have to say about the recognition of**
14 **uncommitted generating resources in long-term reserve margin**
15 **calculations in the recent Duke New Smyrna need case?**

16
17 **A.** In the recent Duke New Smyrna need determination case, the Commission
18 found that absent a contract for its output the unit could not be counted for
19 long-term reserve margins: “The capacity should be considered for hourly
20 and short term operating reserves, but not for long term planning reserve
21 margins, unless contracted for.” (Order No. PSC-99-0535-FOF-EM).

1 Q. Are there other Commission decisions in which the Commission has
2 indicated that non-committed generating resources should not be
3 treated as firm capacity?
4

5 A. Yes. Beginning with its cogeneration rules, and continuing well into the
6 implementation of those rules, the Commission had to address the issue of
7 whether as-available energy provided by QFs should be treated as a
8 capacity resource by purchasing utilities or just as energy. The Commission
9 consistently chose to price as-available energy without recognizing any
10 capacity contribution to the purchasing utility.
11

12 For instance, in 1983 when adopting cogeneration rules the Commission had
13 this to say about the uncommitted resource of as-available energy:
14 “[b]ecause as-available energy carries with it no enforceable assurances as
15 to quantity, time or reliability of delivery, the rule provides that no capacity
16 payments shall be made to a QF for the delivery of as-available energy.”
17 (Order No. 12634). In response to a proposal that as-available energy be
18 given capacity payments, the Commission stated, “there was no showing that
19 what, in essence, is an interruptible source of supply, not controlled by the
20 utility, would be able to permit a prudent utility to defer any capacity related
21 costs.” (Order 12634).
22

23 Similarly, the Commission promulgated rules for identifying avoided units for
24 pricing cogeneration, and those rules required utilities not to include non-
25 contracted-for QF capacity when determining the avoided unit. The

1 Commission noted that this decision not to recognize non-committed
2 capacity in generation expansion plans was intentional. (Order No. 13247).

3
4 Looking back at Commission practice over time, Mr. Trapp's suggestion that
5 non-committed capacity and as-available energy should be recognized in the
6 calculation of reserve margins if its impact can be credibly quantified is
7 surprising. His suggestion is inconsistent with prior Commission practice and
8 a Commission rule. Indeed, the Commission has stated that the impact on
9 reliability of an uncommitted resource cannot be analyzed absent a firm
10 contract.

11

12 **Q. How could reliance on uncommitted capacity damage reliability?**

13

14 **A.** If utilities begin to count upon resources that are uncommitted instead of
15 their own plants upon which they have first claim or instead of entering into
16 firm contracts for capacity, then utilities would be counting upon non-firm
17 capacity to meet firm load. This results in a less reliable system than a
18 system that relies solely upon firm capacity resources.

1 **V. Staff's Uniform Approach to Measuring Reliability for Peninsular Florida**
2 **and Individual Utilities Ignores System Differences and May Mask**
3 **Underlying Reliability Problems.**

4
5
6 **Q. Does a single reliability criterion of a reserve margin of 20% make good**
7 **planning sense for both Peninsular Florida and Individual Utilities?**

8
9 A. No. As I pointed out in my direct testimony, there are fundamental
10 differences among the various utility systems that comprise Peninsular
11 Florida. I will not repeat those distinctions, but they do affect the reliability
12 of systems differently. FPL has found that measuring reliability on its large
13 system is best done through dual reliability criteria. Criteria applicable to a
14 large system such as FPL's or Peninsular Florida's are not necessarily
15 equally applicable to smaller utilities. It is not uncommon for smaller utilities
16 to have reserve margin criteria which are larger than those of large utilities,
17 and that practice simply recognizes one of the many differences among
18 systems.

19
20 Staff has abandoned LOLP without any explanation or justification, and is
21 encouraging the Commission to adopt a single reserve margin standard for
22 every utility in the state, without regard for size or any other distinguishing
23 characteristics. Staff suggests no other standard for judging Ten-Year Site
24 Plan suitability other than the very simple approach of whether in every year
25 every plan shows a reserve margin of 20%. If it is 20% or above, it is

1 suitable. If it is below 20% for any given year out of a ten year horizon, then
2 the plan is to be judged unsuitable.

3
4 The problem with the criterion is that it does not really address whether Ten-
5 Year Site Plans are suitable or serve as a general measure of whether
6 electric systems are reliable. That judgement has to be made after extensive
7 reviews of the various elements comprising and underlying each plan. That
8 judgement is not made by the simplistic assessment of whether in every year
9 for a ten-year horizon the reserve margin meets arbitrary standard.

10
11

12 **VI. Mr. Trapp's Recommendation that a New 20% Reserve Margin Criterion**
13 **be Applied Retroactively to Judge the Suitability of Ten-Year Site Plans**
14 **Is Unreasonable and Unfair.**

15
16

17 **Q. Starting on page 3 of his testimony Mr. Trapp urges the Commission to**
18 **adopt a 20% reserve margin criterion and to use the criterion to judge**
19 **the suitability of Ten-Year Site Plans. What is your response?**

20

21 **A.** I have two responses. First, I am surprised by the recommendation. I did
22 not know that the suitability of Ten-Year Site Plans was contested in this
23 case. If I had, I would have submitted FPL's Ten-Year Site Plan in my direct
24 testimony as an exhibit and discussed why it should be found suitable.

1 Second, the site plans pending before the Commission were submitted in
2 April of this year, five months before Mr. Trapp made his recommendation,
3 and the underlying planning work was conducted almost a year ago. I think
4 it is most unreasonable for the Commission to apply any standard it may
5 adopt in this case retroactively to judge the suitability of any Ten-Year Site
6 Plans. The plans should be judged on their individual merit, not on an
7 arbitrary standard suggested five months after they were filed. While I could
8 elaborate upon the basic unfairness of Mr. Trapp's recommendation that his
9 more demanding standard be applied retroactively to judge plans developed
10 well before a hint of a new standard was issued, I trust the Commission to
11 see the readily apparent unfairness of Mr. Trapp's recommendation.

12
13
14 **V. Other General Observations**

15
16
17 **Q. What other observations do you have regarding the Staff's testimony?**

18
19 **A.** I have a number of other concerns regarding Mr. Trapp's testimony.
20 First, I agree with his conclusion on page 11 of his testimony that there
21 should not be a limit on the ratio of non-firm load to MW reserves, but his
22 suggestion that more study is needed is surprising and troubling. Mr. Trapp
23 suggests, but does not document, that there is a problem requiring further
24 study.

1 Second, Mr. Trapp makes an observation on page 12 of his testimony that
2 it is not clear whether lost revenues associated with avoided off-system sales
3 that would have been made in the absence of the DSM program have been
4 considered in the program cost-effectiveness, and suggests that perhaps
5 the Commission may want to revisit this in conservation program approval
6 dockets or ECCR. To my knowledge no attempt has been made by the
7 Commission in any proceeding using avoided cost to measure cost-
8 effectiveness, whether conservation dockets or cogeneration pricing dockets,
9 to quantify the avoided off-system sales that would have been made by the
10 avoided unit. As a practical matter, the analysis that he suggests should be
11 done, cannot reasonably be performed. This refinement of conservation
12 cost-effectiveness is not warranted, not practical nor possible, and the
13 Commission should not address this issue in any docket.

14
15 Third, on page 13 of Mr. Trapp's testimony there is another suggestion that
16 should be critically reviewed. He would recognize the non-committed
17 capacity, in the Southern Company and in other regions, that is consistently
18 available in Florida. Of course, he does not explain how such a probabilistic
19 analysis would be performed or considered in the non-probabilistic reserve
20 margin analysis. He just makes the observation without explanation or
21 justification. I find this unsupported suggestion troubling. There is no basis
22 for the Commission to judge its validity.

1 Q. Does this complete your rebuttal testimony?

2

3 A. Yes.