

ORIGINAL

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

Submitted for filing: September 27, 1999

SUPPLEMENTAL REBUTTAL TESTIMONY
OF JOHN B. CRISP

ON BEHALF OF
FLORIDA POWER CORPORATION

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SUPPLEMENTAL REBUTTAL TESTIMONY OF JOHN B. CRISP

1 Q. Please state your name and business address.

2 A. My name is John B. Crisp, and my business address is 100 Central Avenue, St.
3 Petersburg, Florida 33701.

4

5 Q. By whom are you employed and in what position?

6 A. I am the Director of Integrated Resource Planning and Load Forecasting for
7 Florida Power Corporation (FPC).

8

9 Q. Did you file direct testimony and rebuttal testimony in this matter?

10 A. Yes, I did.

11

12 Q. Have you reviewed the testimony filed by Tom Ballinger, filed on behalf of
13 the Florida Public Service Commission (PSC) Staff?

14 A. Yes, I have.

15

16 Q. Do you agree with his conclusion that recent developments cast doubt on the
17 efficacy of a 15% reserve margin?

18 A. No, I don't, for several reasons.

19

20 First, he contends that planned reserve margins have been driven down by

21 improved maintenance procedures, which have increased generating unit

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1 availabilities to unprecedented levels. Although acknowledging that this is not a
2 bad thing, he treats it as though it is. In fact, what this development means is that
3 the utilities in Florida have managed to *improve* the reliability of their fleets,
4 reducing pressure to add new capacity to their systems. This should be seen for
5 what it is: a win-win. Utilities have managed to improve system reliability
6 without incurring cost for new construction or imposing the additional impacts
7 that would be associated with such construction on the State's environment.

8
9 Mr. Ballinger contends that, while this "has had a dramatic impact on reliability,"
10 it has "not withstood the test of time." (Ballinger Testimony, at 4). But we are
11 not talking about a radical new concept, only basic engineering: Improved
12 maintenance means improved reliability. That fundamental concept has in fact
13 withstood the test of time.

14
15 In addition, Mr. Ballinger concedes that "utilities have used a 15% reserve margin
16 as a planning criterion for some time." (*Id.*). So, he concedes in essence that this
17 planning criterion has withstood the test of time. He contends, however, that
18 probabilistic criteria, such as LOLP, have historically been the driving factor for
19 most capacity additions. And, remarkably, he views as a problem the fact that
20 "[r]ecent high unit availabilities have reduced LOLP values and hence, shifted the
21 reliability focus to reserve margins." (*Id.* at 5). What he is describing, again, is

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1 the fact that utilities have succeeded in improving the reliability of their
2 generating facilities, thus *reducing* the likelihood that they will be unable to serve
3 load. This is a good development; not a bad one. This should make us feel more
4 *comfortable*, not more *uncomfortable*, with a 15% reserve margin, and it is
5 certainly not a basis to suggest that a higher level of planning reserves be
6 imposed. Nonetheless, as I described in my Direct Testimony, the FRCC and
7 FPC have used a “belt and suspenders” approach of maintaining a 15% reserve
8 margin, *in addition* to ensuring that they satisfy an LOLP criterion of 1 days in 10
9 years. Properly understood, the utilities have not disregarded LOLP analysis, but
10 have concluded that the LOLP criterion is comfortably satisfied.

11

12 Finally, it bears emphasis that it is natural for system capacity to trend one way or
13 the other over time. Planners may appropriately react to a perceived tightening of
14 capacity by recommending new construction of additional generating facilities,
15 for example, but they should *not* react by changing their planning *criteria*. The
16 prevailing 15% planning criterion is a *minimum* reserve margin benchmark, and in
17 any given year individual utilities or the State as a whole may exceed that
18 criterion as a result of the type of planning decisions that I describe.

19

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1 **Q. Mr. Ballinger believes that the FRCC methodology for testing planned**
2 **reserve margins has at least three shortcomings: load diversity, off-peak**
3 **periods, and load forecast errors. Do you agree?**

4 **A. No, I don't. I will discuss each of these concerns, in turn.**

5

6

Load Diversity

7 Mr. Ballinger faults the FRCC for applying a load diversity factor when
8 aggregating the load forecasts of individual utilities. But the FRCC implemented
9 this adjustment as a refinement to its methodology in order to avoid distorting
10 state-wide peak load values. Without this adjustment, the FRCC would be
11 lumping together individual utility peak-load values that actually occur at
12 different times for different utilities. This would artificially inflate the magnitude
13 of peak load experienced at any given time on a state-wide basis. It is difficult to
14 quarrel with the proposition that you should calculate a number by adding up its
15 *actual* components, not by including values that overstate the final figure. What
16 the FRCC has done should not detract from the credibility of its analysis; it should
17 enhance it.

18

19 What Mr. Ballinger is arguing, in essence, is that the FRCC should build “fat”
20 into its state-wide peak load value in order to make it more conservative. But this
21 amounts to using a plug number as a proxy for planning judgment. I believe that

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1 planners will make better decisions, however, if they are working off of truer
2 numbers, making a conscious decision to apply judgment when judgment is called
3 for.

Off-Peak Periods

4
5
6 Next, Mr. Ballinger argues that the FRCC should test planning for off-peak
7 periods since “it is typically off-peak periods when the utilities’ capacity
8 resources are the most challenged.” (*Id.* at 7). It is revealing that Mr. Ballinger
9 says that “This is primarily due to generating units being out of service for
10 maintenance coupled with unusual weather such as a cold front in March . . . or a
11 heat wave in April or May.” (*Id.*). The point that Mr. Ballinger is overlooking is
12 that the very phenomenon he is describing is, by definition, a fluke. Utility
13 systems should not be designed to avoid interruptions in service in any and all
14 circumstances, no matter how flukish. It is more appropriate to plan to serve peak
15 loads during the times that they historically occur. This is a basic tenet of utility
16 planning.

Load Forecast Error Rates

17
18
19 Finally, Mr. Ballinger faults the FRCC for factoring in forecasting error rates on
20 both the positive side and the negative side, averaging out those times that utilities
21 have over-forecasted with the times they have under-forecasted. He says he is

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1 “not too concerned if a utility over-forecasted its load”; he is “more interested in
2 how often and by what amount they were short of the mark.” (*Id.* at 8). But it is
3 of legitimate interest to utilities when they over-forecast load *and* when they
4 under-forecast load. Each event contributes to the *actual* availability of capacity
5 in the State to serve load (in one case producing more excess capacity than
6 planned, which frees up reserves that may be shared with other utilities, and in the
7 other case producing less excess capacity), and it is unrealistic to look at one but
8 not the other. Again, Mr. Ballinger seems to be advocating that the FRCC should
9 strive to introduce distortions into its calculations from its best view of the real
10 world.

11

12 **Q. Mr. Ballinger seeks to demonstrate what impact a 15% reserve margin**
13 **would have on the capacity to serve load in future years if we experienced**
14 **again the same weather conditions of December 1989. Do you agree with his**
15 **suggestion that a 15% reserve margin would yield more interruption of**
16 **service than actually occurred in December 1989?**

17 A. No, I do not. In fact, Mr. Ballinger’s own calculations demonstrate that *without*
18 *maintenance* taking place during December of the planning years, the utilities in
19 Florida would be *better* able to serve load on the basis of a 15% reserve margin
20 planning criterion than they were in December 1989. Since he says this is the

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1 objective he is trying to achieve as a planner, he has essentially proven the
2 efficacy of a 15% reserve margin planning criterion.

3

4 He succeeds in raising a question only by factoring in the (unquantified)
5 possibility that maintenance would be taking place during the same weeks of
6 December over the planning horizon when another extraordinary weather event
7 might occur. Mr. Ballinger overlooks the fact, however, that utilities in Florida
8 plan to perform certain maintenance during the first two weeks of December
9 because it is not realistic to assume that the weather conditions of December 1989
10 will recur during those periods when maintenance is scheduled. Furthermore,
11 utilities plan to conduct only small maintenance tasks during those weeks (*e.g.*,
12 boiler inspections) that will take units out of operations only for short stretches
13 and that may be rescheduled on short notice. If there is in fact a significant risk
14 that an extreme weather event may occur during these weeks, the solution would
15 be to reschedule maintenance, not build more capacity. It is certainly not
16 reasonable for Florida utilities to plan their systems, as Mr. Ballinger proposes,
17 both to perform maintenance *and* to serve the most extraordinary load ever
18 experienced at the same time.

19

20 **Q. Have you reviewed the testimony of Robert L. Trapp, filed on behalf of the**
21 **PSC Staff?**

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1 A. Yes.

2

3 **Q. Do you agree with his opinion that generation planning is a “dynamic**
4 **process,” involving many factors “subject to change,” and that, “[i]n the final**
5 **analysis, system planners [and] utility management . . . must use their own**
6 **experience and judgment to determine the level of reserve margins that are**
7 **likely to best protect the public health and welfare?” (Trapp Testimony, at**
8 **5).**

9 A. Yes, I do. This is the point that I tried to articulate in my Direct Testimony. It
10 bears repeating that the experience of Florida utilities during the last several years
11 indicates that this planning process is working. There is no evidence to support
12 changes, especially arbitrary ones, to current planning criteria. Additionally, the
13 Commission has indicated that this investigation is intended to consider the
14 appropriate “methodology” for calculating planned reserve margins, not to leap
15 directly to establishing a new minimum planning criterion. Staff has effectively
16 bypassed the issue of methodology and progressed directly to asserting a
17 conclusion that a 15% reserve margin criterion is inappropriate.

18

19 **Q. Do you agree with his criticism that the FRCC should have proposed or**
20 **developed by now some methodology to measure the likely contribution of**

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1 **non-committed power resources, such as merchant plants, to the adequacy of**
2 **the Peninsular Florida system?**

3 A. No, I do not. I believe that his criticism is based on inaccurate assumptions
4 concerning non-firm energy availability and volatility price exposure during peak
5 periods. I will explain:

6
7 To begin with, the question whether merchant plants may be properly sited in
8 Florida under existing legislative authority remains to be resolved by the Florida
9 Supreme Court. Putting that question aside, Mr. Trapp asserts that “2,500 MW of
10 non-committed merchant plant capacity is scheduled to be placed in-service in
11 Peninsular Florida in the next five years,” and “[n]one of this planned 2,500 MW
12 of non-committed capacity is subject to a need determination under the Florida
13 Power Plant Siting Act.” (Trapp Testimony, at 6). He speculates that this “non-
14 committed capacity will provide an additional source of needed capacity in
15 Florida,” and therefore he “find[s] it surprising” that the FRCC has not proposed
16 or developed methodologies to measure “the likely contribution of these
17 generation resources to the adequacy of the Peninsular Florida system.” (*Id.* at 7).

18
19 There are several problems with his analysis. As a threshold matter, Mr. Trapp
20 overlooks the fundamental fact that merchant-plant developers and portfolio
21 marketers of non-firm energy have no obligation to serve and have no

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1 commitment to fulfill any capacity needs in Florida. Concerning merchant
2 development, industry analysts have correctly observed:

3 The likelihood is that not all . . . (proposed) generating plants will be built.
4 Because they are driven almost entirely by market economics, even subtle
5 regional price changes may be enough to prevent some plants from going
6 forward. In this sense, merchant plant developers are not unlike
7 commercial real estate developers who announce a new building, look for
8 tenants to lease space, and take a handful of signed leases (that is,
9 “capacity commitments”) to a lender for construction financing. If for
10 some reason the pool of available tenants dwindles or if market economics
11 turn south, the project stops until conditions improve.

12
13 *Electric Utility Week*, p. 8 (July 20, 1998), quoting Energy Insight.

14

15 Mr. Trapp also overlooks the fact that the PSC has repeatedly emphasized that
16 only firm resources may be taken into account in calculating reserve margins.
17 *See, e.g.*, Rule 25-6.035 (2) (“Only *firm purchase power agreements* may be
18 included as a resource for purposes of calculating a planned or operating reserve
19 margin.”); *Re Determine Need for Proposed Capital Expansion Project of the*
20 *Dade County Resources Recovery Facility*, 93 FPSC 11,375 (Nov. 30, 1993)
21 (finding that Dade County’s expanded solid waste facility would “not contribute
22 to the reliability and integrity of the state’s electric system” because “*Dade*
23 *County has not committed to sell firm capacity* pursuant to a Commission-
24 approved contract” and stating that, “[b]ecause there are no plans to sell *firm*
25 capacity, *there is no way to analyze any effect on the state’s reliability and*
26 *integrity due to Dade County’s energy sales*”) (emphasis added).

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1 By the same token, the PSC has repeatedly emphasized that as-available energy
2 offered by QFs is *not* reliable. Stating that “it is *impossible* to count on any as-
3 available cogeneration facility as a *firm* capacity resource,” the PSC has directed
4 the FRCC (formerly the FCG) *not* to count “planned or proposed cogeneration
5 that was *not* under contract or letter of intent to Florida utilities . . . as capacity
6 resources.” *In re: Hearings on Load Forecasts, Generation Expansion Plans,*
7 *and Cogeneration Prices for Peninsular Florida’s Electric Utilities*, 108 P.U.R.4th
8 398 (Fla. P.S.C. Dec. 26, 1989) (emphasis added), *as amended* Feb. 5, 1990); *see,*
9 *e.g., id.* (as-available energy cannot “be *reasonably relied upon*”) (emphasis
10 added); Rule 25-17.0825(1) [formerly Rule 25-17.825] (QFs should not be given
11 capacity payments for as-available energy because as-available sales “lack . . .
12 assurances as to the quantity, time, or reliability of delivery”).

13
14 Thus, by criticizing the FRCC for omitting to include consideration of non-firm
15 market resources in its computation of firm reserve margins, Mr. Trapp is
16 basically faulting the FRCC for adhering to long-standing Commission policy.
17 His position is neither fair nor well taken.

18
19 The Commission’s consistent refusal (putting the decision in the *Duke* case aside)
20 to count uncommitted capacity toward needed reserves makes good policy sense.
21 The whole concept of a reserve margin is to identify and quantify power resources

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1 that a utility, or the State, can *count on* in times of need to serve peak load.
2 (Perhaps this is why it is known as “reserve” or “reserved” capacity.) Neither a
3 particular utility, nor any collection of utilities in Peninsular Florida, can count on
4 merchant capacity, which by definition is *uncommitted*, to meet the need of
5 Florida utilities. The primary objective of a merchant plant is to achieve a
6 maximum return on investment through a broad range of portfolio deals. The
7 whole idea of operating as a “merchant” plant is to remain *free* from firm
8 commitments that, by their nature, constrain the flexibility of the revenue streams
9 that the merchants can achieve. In other words, the focus of the “merchant” plant
10 is to pursue opportunity sales based on the economic self-interest of the merchant.
11 As discussed above, industry analysts have correctly observed that this is exactly
12 how merchant developers behave in actual practice.

13
14 In fact, we have every reason to question whether uncommitted capacity that may
15 be developed in Florida would actually be available when Florida utilities might
16 need power resources. In the past, need outside the State often has been great
17 when need inside the State is also pronounced. Cold weather in Florida may well
18 be coincident with even colder weather north of here. The same is true of heat
19 waves, as demonstrated by events during the past few years. We have no
20 assurance that uncommitted resources would sell power into Peninsular Florida in

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1 these circumstances. The simple reality is that merchant facilities, by definition,
2 will sell wherever the economic opportunities are greatest.

3
4 Even from a probabilistic standpoint, it is difficult to determine the probability
5 that uncommitted capacity will be available in Florida at a time of peak load. To
6 make this determination, we would have to be able to predict pricing patterns in
7 areas where Florida-based merchant entities might market energy. Whenever the
8 price outside the State becomes attractive in relation to prices within the State,
9 and sufficient transmission capacity exists, there may be a zero probability that
10 uncommitted generation capacity will be available to meet the needs of Florida
11 utilities. The problem may be compounded if a merchant enters into short-term
12 contractual commitments to sell energy outside the State that may preclude the
13 merchant from responding even to favorable pricing signals in Florida during a
14 peak-load experience. How can we factor the “energy goes to the highest bidder”
15 concept into a regulated reliability based reserve margin calculation? I believe the
16 answer is that we cannot, not without eroding the integrity of the operating
17 system, as well as the ability to serve native load through the reserve margin
18 concept.

19
20 Sensitive to these concerns, in its Order Establishing Reserve Margin Criteria
21 used for the reserve sharing rule the Commission specifically rejected a Staff

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1 proposal to evaluate the feasibility of a voluntary market-based system of energy
2 sales to assist utilities in serving firm load. The Commission stated, “We are not
3 persuaded that such a system is adaptable to those situations where a *utility lacks*
4 *sufficient capacity to serve its firm customers.*” *In Re: Generic Investigation into*
5 *Planning and Operating Reserve Practices of Peninsular Florida Generating*
6 *Electric Utilities*, Order No. PSC-94-1256-FOF-EU, 1994 WL 570129, *6 (Fla.
7 P.S.C. Oct. 11, 1994) (emphasis added).

8
9 For all these reasons, FPC and other utilities do not count non-firm out-of-state
10 resources toward reserve margins. While utilities do take these resources into
11 account in conducting assisted LOLP analyses, the prospect that merchant
12 capacity may be added to the State would have no impact on the outcome of that
13 analysis. With or without the addition of merchant capacity, the FRCC and
14 individual utilities have been able to demonstrate that the LOLP criterion of 1 day
15 in 10 years is readily satisfied.

16
17 **Q. Mr. Trapp offers to count uncommitted capacity towards his proposed 20%**
18 **reserve margin, provided “the FRCC and individual utilities were to credibly**
19 **quantify the availability of non-committed capacity being developed in**
20 **Florida.” (E.g., Trapp Testimony, at 7). Do you believe that this is a realistic**
21 **proposal?**

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1 A. No, I don't. While criticizing the FRCC for not figuring out a way – contrary to
2 the consistent direction of the PSC – to count uncommitted capacity toward
3 reserve margins for Peninsular Florida, he offers no means for doing so in his
4 testimony. In fact, what he suggests runs contrary not only to long-standing
5 Commission policy, but to the stated premise of Mr. Ballinger's testimony that
6 "caution should be taken before adopting any reliability standard that has not been
7 through the rigors of time testing." (Ballinger Testimony, at 5). It is difficult to
8 imagine an industry phenomenon more untried and untested than the inclusion of
9 non-firm capacity within a specific reliability requirement for a regulated
10 environment like Florida. I believe that no one can predict the outcome of an
11 experiment that blends the reliability requirements of a regulated operating
12 environment with the pricing and delivery exposure associated with non-firm
13 capacity and portfolio energy. For this reason, FPC has consistently advocated
14 the view that the legislature is best equipped to determine the desirability,
15 strategy, processes, timing, and execution of such an endeavor.

16
17 **Q. Does Mr. Trapp adequately support his proposal for a 20% reserve margin**
18 **by comparison with what other utilities or reliability councils are doing**
19 **around the country?**

20 A. No, he does not. In fact, he states bluntly that he is not able to make any such
21 comparison but is relying basically upon his own judgment. (Trapp Testimony, at

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1 15). What this means is that he is rejecting the judgment of the FRCC and other
2 utilities in Florida, and rejecting the judgment of other reliability councils around
3 the country, that have used a 15% *minimum* reserve margin planning criterion, in
4 favor of what he has unilaterally determined is a better approach.

5

6 **Q. Do you agree with Mr. Trapp’s opinion that a reserve margin criterion**
7 **should not “be adopted to absolutely ensure that outages do not occur during**
8 **periods of extremely cold weather?” (Trapp Testimony, at 17).**

9 A. Yes, I do. This is consistent with the long-standing approach of the Commission,
10 the FRCC, Florida utilities, and the electric utility industry.

11

12 **Q. If we were to accept Mr. Trapp’s goal of ensuring that “the MWs of capacity**
13 **unserved as a result of an extreme weather event should be *no greater than***
14 **that experienced during Christmas 1989” (Trapp Testimony, at 17)**
15 **(emphasis added), could we achieve that result by using a 15% reserve**
16 **margin planning criterion?**

17 A. Absolutely. This is demonstrated by Table 2 of Mr. Trapp’s own exhibits
18 (Exhibit RLT-1), which establishes that MWs of unserved capacity would fall far
19 short of that experienced in December 1989, using a 15% reserve margin
20 criterion, in the event that utilities would not be performing maintenance on their
21 units during that time. As I have explained above, it is not reasonable to plan a

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1 system based on the unrealistic supposition that an admittedly extraordinary
2 weather condition would occur during the same days that utilities were planning
3 maintenance. Utilities follow careful planning practices and procedures to plan
4 maintenance at times when they can reasonably anticipate lower load conditions.

5

6 **Q. Do you agree with Mr. Trapp's opinion that the FRCC and individual**
7 **utilities should adopt a 20% reserve margin planning criterion?**

8 A. No, I do not. For the reasons I have given, I don't believe Mr. Trapp has provided
9 sufficient justification for adopting a different criterion. As I have discussed, 15%
10 is a criterion that has successfully withstood the test of time both here in Florida
11 and around the country. If Staff has concerns related to a perceived decline in the
12 level of actual reserve levels, then those concerns are best addressed in the Ten
13 Year Site Plan forum or in a separate proceeding designed to evaluate the
14 sufficiency of utility reserves, not in this proceeding, which is intended to
15 evaluate the appropriate methodology for calculating such reserves.

16

17 **Q. Does this conclude your supplemental rebuttal testimony?**

18 A. Yes, it does.