

BEFORE THE
FLORIDA PUBLIC SERVICE COMMISSION

 In the Matter of : DOCKET NO. 941101-EQ
 :
 Petition for determination that :
 plan for curtailing purchases :
 from qualifying facilities in :
 minimum load conditions is :
 consistent with Rule 25-17.086, :
 F.A.C., by FLORIDA POWER :
 CORPORATION. :

SECOND DAY - LATE AFTERNOON SESSION

VOLUME 5

Pages 635 through 740

PROCEEDINGS:

HEARING

BEFORE:

CHAIRMAN SUSAN F. CLARK
 COMMISSIONER J. TERRY DEASON
 COMMISSIONER JULIA F. JOHNSON
 COMMISSIONER DIANE K. KIESLING
 COMMISSIONER JOE GARCIA

DATE:

Tuesday, May 9, 1995

TIME:

Commenced at 9:00 a.m.

PLACE:

FPSC Hearing Room 106
 Fletcher Building
 101 East Gaines Street
 Tallahassee, Florida

REPORTED BY:

SYDNEY C. SILVA, CSR, RPR
 Official Commission Reporter

APPEARANCES:

(As heretofore noted.)

DOCUMENT NUMBER-DATE

FLORIDA PUBLIC SERVICE COMMISSION 04901 MAY 22 1995

FPSC-RFC0500/REPORTING

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I N D E X**WITNESSES**

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EXHIBITS

NUMBER	IDENTIFIED	ADMITTED
10 (Orlando CoGen) Stipulation Docket No. 941101-EQ, between Florida Power Corporation and Orlando CoGen Limited, L.P.	638	
11 (Slater) KJS-1 through KJS-6	644	
12 (Slater) KJS-7 through KJS-9	644	
13 (Slater) KJS-10	644	

P R O C E E D I N G S

(Transcript continues in sequence from Volume 4.)

MR. MCGLOTHLIN: The next witness is Ken Slater, who was not present when you gave the oath to the witnesses.

MR. PRESNELL: Chairman Clark, while the witness is taking the stand, I just wanted to indicate there are a few housekeeping matters we would like to attend to sometime and maybe this afternoon before we break would be appropriate so we'd have a clean slate tomorrow. I don't imply we should interrupt this witness, but there are some things I think we might get out of the way when there's an appropriate time.

CHAIRMAN CLARK: Let's do it now while he's taking the stand.

MR. PRESNELL: The first relates to the admission of Staff Exhibit 8. I've had some discussions with Florida Power and I think there's an agreement that at the very least we should introduce as an exhibit into the record the stipulation between the parties, a copy of which we supplied to the Commission, so that the record is clear that there have been no efforts by either side to litigate that issue, so that there's no misunderstanding about that. So we would like for the stipulation to receive an exhibit number and be admitted.

CHAIRMAN CLARK: We need copies of that. Do you have copies available right there?

MR. PRESNELL: Yes, I do.

1 CHAIRMAN CLARK: All right, we'll identify that as
2 Exhibit 10.

3 MS. BROWN: Chairman Clark, the Staff would like a
4 copy of that stipulation, as well; we have never seen it.

5 CHAIRMAN CLARK: Okay.

6 MS. BROWN: I would also like to mention that we
7 were not party to the discussion between Power Corp and Staff
8 about this exhibit.

9 CHAIRMAN CLARK: Okay. Well, then we can identify
10 it? Are you going to have any objection to it?

11 MS. BROWN: I have to look at it and think about it
12 for a minute, if I might.

13 CHAIRMAN CLARK: It is entitled, "Stipulation,
14 Docket No. 941101-EQ," and it is a stipulation between Florida
15 Power Corporation and Orlando CoGen Limited.

16 THE REPORTER: May the reporter have a copy for the
17 record?

18 CHAIRMAN CLARK: Mr. Presnell, the most important
19 person does not have a copy.

20 MR. PRESNELL: I'm sorry.

21 (Exhibit No. 10 marked for identification.)

22 MR. PRESNELL: In order not to belabor, to be
23 environmentally sensitive, there is an identical stipulation
24 signed between Florida Power and Pasco and I see no need to
25 introduce a separate exhibit unless Mr. Watson feels that's

1 necessary.

2 MR. WATSON: Mr. Fama was asking me about that. I
3 don't see any reason to have another exhibit, just so the
4 record reflects there is an identical stipulation between
5 Florida Power and Pasco Cogen Limited.

6 CHAIRMAN CLARK: Thank you. Anything else,
7 Mr. Presnell?

8 MR. PRESNELL: Just briefly, Commissioners. I have
9 a statement that has been preapproved by Florida Power that I
10 would like to read into the record, if I could. It's very
11 brief.

12 CHAIRMAN CLARK: Well, Mr. Presnell, have you also
13 talked to Staff about it?

14 MS. BROWN: No, not a word.

15 CHAIRMAN CLARK: Okay. Why don't I give you time to
16 do that while I swear in Mr. Slater. Maybe at the end of
17 Mr. Slater's testimony when we move his exhibits into the
18 record you can also move Exhibit 10 and we'll see if there's
19 an objection and you can make your statement. And we can also
20 move Mr. Slater's exhibits at the same time.

21 MR. PRESNELL: Thank you.

22 MR. SASSO: Chairman Clark, we would have a request
23 to make. I apologize for interrupting, but it pertains to
24 Mr. Slater's testimony.

25 Under the circumstances and given the Commission's

1 ruling this morning about the rebuttal testimony and
2 Mr. Slater's opportunity to respond to Ms. Brousseau's
3 testimony, we would ask that we be given leave to cross
4 examine Mr. Slater tomorrow morning instead of this afternoon
5 so that we can have an opportunity to consider what Mr. Slater
6 says today, which we will hear for the first time, and come to
7 some understanding of it.

8 Obviously, this is a highly technical subject
9 matter. I think it's probably safe to assume that Mr. Slater
10 has been laboring over the past few days on this. And in the
11 interests again of giving the Commission the best information
12 we're able to provide in this compressed time frame, we would
13 ask for leave to proceed in that manner.

14 We have been handed an exhibit that Mr. Slater has
15 prepared, and we received this a short while ago. It looks
16 like a fairly technical exhibit; and again, in fairness to
17 Florida Power, we would request the opportunity to give this
18 fuller consideration and analysis before we cross examine this
19 witness.

20 CHAIRMAN CLARK: Mr. McGlothlin?

21 MR. MCGLOTHLIN: Mr. Slater's testimony is going to
22 be in increments. He's prepared to make a summary that is
23 divided into what he has done prior to this point and what he
24 has since done after he received the supplemental testimony.
25 I don't have any objection to the cross on this new exhibit

1 occurring tomorrow morning, but I don't see how what he has
2 done prior to that point bears on their need for more time to
3 the extent it's available today.

4 CHAIRMAN CLARK: If I understand you correctly, you
5 are suggesting the cross examination proceed except on those
6 issues that he introduces today, and those would be taken up
7 tomorrow?

8 MR. McGLOTHLIN: That's acceptable to us.

9 MR. SASSO: We would be happy to do it either way.

10 CHAIRMAN CLARK: My preference is to do it that way.
11 We would like to break tonight at 6:00 and we have some time
12 constraints tomorrow with respect to getting to another
13 hearing the following day. And we tentatively plan to
14 conclude the hearing at 4:30, so I think we need to get as
15 much done tonight as we can.

16 MR. SASSO: Fine.

17 CHAIRMAN CLARK: So we will go ahead and take
18 Mr. Slater. We will go through cross examination of him. To
19 the extent you need through the evening and then tomorrow
20 morning -- to the extent you need tomorrow morning to do cross
21 examination on the oral testimony he presents today, you may
22 do so tomorrow. We will also attempt to have Mr. Smith on the
23 stand tonight.

24 MR. SASSO: And do I understand we would also be
25 able to address this new exhibit tomorrow?

1 CHAIRMAN CLARK: Yes.

2 MR. SASSO: Thank you.

3 CHAIRMAN CLARK: Okay. Mr. Slater, will you please
4 stand and raise your right hand.

5 (Witness sworn.)

6 - - - - -

7 KENNETH JOHN SLATER

8 was called as a witness on behalf of Orlando Cogen, Ltd., L.P.
9 and Pasco Cogen, Ltd. and, having been duly sworn, testified
10 as follows:

11 DIRECT EXAMINATION

12 BY MR. MCGLOTHLIN:

13 Q Please state your name and business address.

14 A My name is Kenneth John Slater. My business address
15 is 3370 Habersham Road, Atlanta, Georgia 30305.

16 Q By whom are you employed, Mr. Slater, and in what
17 capacity?

18 A I am president of Slater Consulting, or, more
19 correctly, Slater Energy Consultants, Inc., a Georgia company
20 which I formed in 1990 and which does consulting work in the
21 utility industry.

22 Q For whom do you appear today?

23 A For Orlando CoGeneration and Pasco Cogen.

24 Q On behalf of those intervenors, have you prepared
25 and previously submitted direct testimony in this proceeding?

1 A Yes, I have. I have presented direct testimony and
2 exhibits, and I also submitted on April 25 some supplemental
3 direct testimony and exhibits.

4 Q Focusing first on the initial direct testimony,
5 Mr. Slater, I believe you have one or more corrections; is
6 that correct?

7 A On the supplemental I have two small corrections.
8 On Page 3, Line 14, the first word should be "excluding" as
9 opposed to "including."

10 CHAIRMAN CLARK: Where is that, Mr. Slater, again?

11 WITNESS SLATER: This is the supplemental direct
12 testimony.

13 CHAIRMAN CLARK: I'm there.

14 WITNESS SLATER: Page 3, Line 14, there is a word
15 "including" which begins the line, it should be "excluding."

16 And on the page called Exhibit KJS-8, at the back of
17 that supplemental testimony, on the right-hand side of that
18 page there's simulation notes. The first note reads "CR-5
19 cycled off," it should be, "CR-2 cycled off."

20 Q (By Mr. McGlothlin) Mr. Slater, attached to the
21 initial direct testimony are documents captioned Exhibits
22 KJS-1 through 6. Were those prepared by you or under your
23 supervision?

24 A Yes, they were.

25 MR. MCGLOTHLIN: Could I have an exhibit number

1 assigned to that?

2 CHAIRMAN CLARK: That will be Exhibit No. 11.

3 Q (By Mr. McGlothlin) And you have previously
4 referred to the second document, which is the supplemental
5 testimony. Attached to that document are exhibits captioned
6 KJS-7 through 9. Were those prepared by you or under your
7 supervision?

8 A Yes, they were, Mr. McGlothlin.

9 MR. MCGLOTHLIN: Could I have an exhibit number,
10 please?

11 CHAIRMAN CLARK: That will be Exhibit 12.

12 (Exhibit Nos. 11 and 12 marked for identification.)

13 Q (By Mr. McGlothlin) As a result of your opportunity
14 to review the rebuttal testimony of Florida Power Corporation
15 witness Linda Brousseau, have you also prepared an additional
16 schedule?

17 A Yes. Before I left the office to come over, I just
18 prepared this exhibit which I have got labeled as KJH-10. I'm
19 sorry, but it doesn't have a title.

20 MR. MCGLOTHLIN: We'll need one more exhibit number
21 for the most recent document.

22 CHAIRMAN CLARK: Okay, KJS-10 will be Exhibit 13.

23 (Exhibit No. 13 marked for identification.)

24 Q (By Mr. McGlothlin) Now, as corrected, Mr. Slater,
25 do you adopt the direct testimony and supplemental testimony

1 that was prefiled by you as your testimony today?

2 A Yes, I do.

3 MR. MCGLOTHLIN: I request that the court reporter
4 incorporate in the record first the direct testimony and then
5 the supplemental direct testimony of Mr. Slater.

6 CHAIRMAN CLARK: The direct testimony of Mr. Slater
7 and the supplemental direct testimony of Mr. Slater will be
8 incorporated in the record as though read.

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1 **BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION**

2 **DIRECT TESTIMONY AND EXHIBITS**

3 **OF**

4 **KENNETH J. SLATER**

5 **ON BEHALF OF**

6 **ORLANDO COGEN LIMITED, L.P. AND PASCO COGEN, LTD.**

7 **DOCKET NO. 941101-EQ**

8 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

9 A. My name is Kenneth J. Slater and my business address is
10 3370 Habersham Road, Atlanta, Georgia 30305.

11 **Q. BY WHOM ARE YOU EMPLOYED?**

12 A. I am president of my own consulting firm, Slater
13 Consulting, which I founded in 1990.

14 **Q. PLEASE PROVIDE YOUR EDUCATIONAL BACKGROUND AND**
15 **PROFESSIONAL EXPERIENCE.**

16 A. I hold a Bachelor of Science degree in Pure Mathematics
17 and Physics and a Bachelor of Engineering degree in
18 Electrical Engineering from the University of Sydney in
19 Australia. I also hold a Master of Applied Science
20 degree in Management Sciences from the University of
21 Waterloo in Ontario, Canada. I have over thirty years of
22 experience in the energy and utility industries of,
23 collectively, the United States, Canada and Australia.
24 I have appeared as an expert witness in regulatory
25 hearings at FERC and in California, Florida, Georgia,

1 Idaho, Indiana, Iowa, New Mexico, New York, Nova Scotia,
2 Ontario, Prince Edward Island and Texas, and in civil
3 arbitration proceedings in Louisiana and Pennsylvania.
4 I have also been called upon as an expert examiner on
5 many occasions for a Royal Commission in Ontario.

6 Prior to founding Slater Consulting, I was Senior
7 Vice President and Chief Engineer at Energy Management
8 Associates, Inc. (EMA) in Atlanta, where I worked from
9 1983 to 1990. At EMA, after initially contributing to
10 the firm's utility software development functions, I
11 became the head of its consulting practice, leading or
12 making significant contributions to a number of important
13 consulting engagements related to valuation or analysis
14 of power supplies and power supply contracts, generation
15 planning, damages assessments, operating reserve
16 requirements, replacement power cost calculations, gas
17 supply studies, utility merger valuations, operational
18 integration of utility systems, power pooling, system
19 reliability, ratemaking, and power dispatching.

20 From 1969 until 1983, I worked in the Canadian
21 utility industry, initially at Ontario Hydro, where I
22 headed the Production Development Section of the
23 utility's Operating Department. There I developed
24 computer models, including one which, for more than 20
25 years, produced the daily generation schedules for the

1 Ontario Hydro system, and another, the original PROMOD,
2 which was used for coordination and optimization of
3 production planning and resource management.
4 Subsequently, I worked as Manager of Engineering at the
5 Ontario Energy Board (the utility regulatory commission)
6 and as Research Director for the Royal Commission on
7 Electric Power Planning.

8 From 1976 to 1983, I ran my own firm, Slater Energy
9 Consultants, Inc., and consulted widely in Canada and the
10 United States for utilities, governments, public enquiry
11 commissions, utility customers and other consulting
12 firms. It was during this time and my time at EMA that
13 I was a major developer of PROMOD III®.

14 Prior to 1969, I was employed by the Electricity
15 Commission of New South Wales, the largest electric
16 utility in Australia, where I was responsible for the
17 day-to-day operation of one of the six regions comprising
18 that system. My resume is attached as Exhibit No. 11
19 (KJS-1).

20 Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

21 A. I have been asked by Orlando Cogen Ltd. and Pasco Cogen
22 Ltd. to comment on several aspects of Florida Power
23 Corporation's (FPC) proposed curtailment plan.

24 Q. HOW DOES YOUR TESTIMONY RELATE TO THAT OF DR. ROY
25 SHANKER?

- 1 A. Dr. Shanker and I coordinated our efforts, and our
2 testimony is complementary. Dr. Shanker's conclusions
3 stem largely from an analysis of legislative history,
4 while my views are more deeply rooted in operational
5 considerations. Dr. Shanker and I both stress the
6 distinction between planning decisions (which do not
7 support curtailments) and "operational circumstances"
8 (which may support curtailments only if QF purchases
9 would result in negative avoided costs).
- 10 Q. PLEASE EXPLAIN WHAT YOU MEAN BY AN APPROACH ROOTED IN
11 OPERATIONAL CONSIDERATIONS.
- 12 A. I believe the analysis of FPC's proposed plan must begin
13 with a fundamental identification of the nature and type
14 of increased "costs" that justify curtailment. Only
15 where operational circumstances cause a utility to
16 experience increases in variable production costs as a
17 result of accepting QF energy, can a utility curtail
18 those QF purchases. The industry has coined the term
19 "negative avoided costs" to recognize the correlation
20 between what the utility would pay the QF for decreases
21 in variable production costs as a result of accepting its
22 energy under normal conditions and what the QF would
23 logically be required to pay the utility, for its "as-
24 available" energy deliveries, if variable production
25 costs went up instead of down upon receipt of QF

1 generation. I have assessed FPC's proposed plan as it
2 relates to the existence of operational circumstances
3 necessary to justify curtailment, and I have examined
4 FPC's approach to quantifying what it sees as negative
5 avoided costs.

6 **Q. WHAT CONCLUSIONS HAVE YOU REACHED REGARDING FPC'S**
7 **PROPOSED PLAN AND THE LEGITIMACY OF CURTAILMENTS THAT IT**
8 **HAS CONDUCTED PURSUANT TO THE PROPOSED PLAN TO DATE?**

9 A. I conclude that FPC's proposed plan is deficient in
10 several respects. First, FPC's plan improperly
11 subordinates firm QF purchases to FPC's purchases from
12 other utilities. Second, FPC does not include any
13 forward planning to eliminate minimum load problems
14 through realistic unit commitment. Third, FPC's plan
15 fails to require that FPC attempt to market excess
16 generation at a price designed to ensure a sale, prior to
17 curtailing firm QF purchases. Fourth, even if the
18 Commission were to determine that "operational
19 circumstances" were present and FPC had exhausted all
20 avenues to balance load with generation, FPC has
21 distorted the quantification of the avoided costs
22 associated with its purchases of firm QF generation by
23 performing the quantification for an unrealistically
24 short duration of QF purchases. Finally, FPC exaggerates
25 the operational costs by treating "unit impact costs" as

1 production costs. If they exist, such costs are hardware
2 and maintenance costs and are relevant only as to utility
3 planning decisions. They should not affect short-term
4 operational decisions.

5 FPC'S PURCHASES FROM OTHER UTILITIES

6 Q. PLEASE DESCRIBE FPC'S PROPOSED TREATMENT OF FIRM
7 PURCHASES FROM OTHER UTILITIES DURING LOW LOAD
8 SITUATIONS.

9 A. FPC has contracted to buy firm power from Southern
10 Company under the terms of a unit power sales (UPS)
11 agreement. Under the agreement, FPC has certain
12 contractual "must take" obligations whenever informed by
13 Southern that one or more of the units supplying the
14 contracted power is at its minimum operating level.
15 Under its proposed plan, FPC would subordinate firm QF
16 purchases to its UPS obligations.

17 In two of the seven curtailment incidents
18 encompassed by Mr. Southwick's testimony, actual hourly
19 minimum takes for FPC's Southern Company purchases
20 exceeded the hourly levels of curtailment.

21 Q. DOES THIS TREATMENT COMPLY WITH THE CURTAILMENT
22 REGULATIONS?

23 A. No.

24 Q. WHY NOT?

25 A. Again, two considerations bear on the treatment that is

1 required of FPC. Dr. Shanker has pointed out that, in
2 terms of legislative policy, PURPA prefers cogeneration.
3 Congress created a mandatory market for QF generation to
4 overcome utilities' reluctance to purchase from
5 cogenerators. From that standpoint alone, FPC's
6 priorities violate the intent of PURPA.

7 My point is a related one, and again is based on
8 operational considerations. The FERC rule (which the
9 Commission's rule implements) authorizes curtailment only
10 if QF purchases alter the utility's production costs.
11 Minimum payments made to a selling utility -- even for
12 energy not taken -- do not constitute production costs,
13 and so are irrelevant to the measurement of FPC's avoided
14 costs that are associated with purchases from QFs. FPC's
15 plan is deficient because it contemplates curtailing QFs
16 in order to accept this minimum level of power purchased
17 from Southern Company.

18 In 1989, the New York Public Service Commission
19 found proposed utility curtailment plans to be deficient
20 for the same reason.

21 INADEQUATE OPERATIONAL PLANNING

22 Q. HOW DOES FPC'S CURTAILMENT PLAN FAIL TO USE FORWARD
23 PLANNING TO AVOID THE MINIMUM LOAD PROBLEMS WHICH CAN
24 DEGENERATE INTO IMBALANCES BETWEEN GENERATION AND LOAD?

25 A. An examination of the unit commitment situations during

1 the seven curtailment incidents described in Mr.
2 Southwick's testimony plainly indicates that FPC failed
3 to use forward planning to eliminate minimum load
4 problems. Table 1, Exhibit No. H (KJS-2), displays the
5 FPC generating units which were committed during each
6 curtailment incident. In each case, at least four out of
7 five of FPC's Crystal River base load units were
8 committed, along with the University of Florida
9 cogeneration unit. In four of the seven cases, all five
10 Crystal River units were committed, and in two of these
11 four cases, one or two cycling units were also on line.

12 Such high levels of capacity commitment appear to be
13 inviting minimum load problems. Forward planning could
14 have been used to eliminate these situations which led to
15 curtailment incidents.

16 Q. IF FPC HAD REDUCED ITS COMMITMENT OF BASE LOAD CAPACITY
17 PRIOR TO EACH OF ITS CURTAILMENT INCIDENTS, WOULD ITS
18 OPERATIONAL COSTS HAVE INCREASED?

19 A. Operational costs could have increased as a result of
20 committing a realistic level of base load capacity. To
21 deliberately maintain a higher level of base load
22 capacity commitment in order to achieve cost savings is
23 a decision which the utility should make only if it
24 recognizes that the consequences may precipitate a
25 minimum load problem. Elimination of any subsequent

1 minimum load in such a scenario should then become the
2 responsibility of the utility without the involvement of
3 its QF suppliers.

4 Any attempt to use curtailment in such cases of
5 voluntary utility overcommitment of base load resources
6 would be a misuse of the PURPA curtailment provisions.

7 Q. WOULD THE NON-COMMITMENT OF ONE OF FPC'S BASE LOAD UNITS,
8 DURING THE TIME OF EACH CURTAILMENT INCIDENT HAVE CAUSED
9 FPC TO HAVE DIFFICULTY MEETING ITS PEAK LOAD ON THE SAME
10 DAY?

11 A. No. As Table 2, Exhibit No. 11 (KJS-3), demonstrates,
12 there was abundant uncommitted cycling capacity, peaking
13 capacity, and UPS energy from Southern Company available
14 for use to meet FPC's peak load on each of the
15 curtailment days, in place of one of its base load units.

16 INCREASED SALES TO OTHER UTILITIES OR CUSTOMERS

17 Q. HOW DOES FPC'S PROPOSED PLAN FAIL TO REQUIRE FPC TO
18 MARKET EXCESS GENERATION AS A MEANS OF BALANCING
19 GENERATION AND LOAD?

20 A. FPC can offer the excess generation for sale at any price
21 that is zero or greater than zero without incurring
22 negative avoided costs. Dr. Shanker has established that
23 there is no impediment in the form of incremental cost
24 concepts that prevents FPC from offering such a price.

25 Q. PLEASE EXPLAIN HOW FPC CAN SELL POWER AT A PRICE OF ZERO

1 **OR ABOVE WITHOUT INCURRING NEGATIVE AVOIDED COSTS.**

2 A. Again, it is essential to keep the limitations on the
3 FERC's "special dispensation" firmly in mind. Only if
4 purchases (during operational circumstances) would cause
5 a utility to incur greater production costs than it would
6 incur in the absence of purchases from QFs can the
7 utility curtail those purchases. Therefore, if the
8 utility can market an amount of power equal to the amount
9 of power it would otherwise curtail, the QF deliveries
10 have affected neither the utility's level of generation
11 nor its production costs and the utility has experienced
12 no negative avoided costs. In fact, any positive revenue
13 from such sale results in the utility having a positive
14 avoided cost relative to that energy which is sold.

15 **Q. PLEASE ILLUSTRATE YOUR POINT.**

16 A. I will do so by reference to Exhibit No. 11 (KJS-4).
17 This exhibit is designed to illustrate the impact on
18 production costs of a sale equivalent in amount to a
19 utility's excess generation.

20 The left hand bar graph shows the excess condition
21 prior to the sale. The utility's units are at minimum
22 generating levels and QFs are delivering 200 MW of
23 capacity. Together, generation by the utility and QFs
24 exceed system load by 100 MW.

25 The middle bar graph shows the condition in which

1 the utility has curtailed QF purchases by 100 MW to
2 balance generation and load. The generation of QFs
3 decreases: The utility's generation is unchanged.

4 The right-hand bar graph shows the condition in
5 which the utility sells 100 MW to another utility,
6 continues to purchase 200 MW from QFs, and achieves a
7 balance between generation and load at the higher level
8 of total generation. The QFs deliver their generation;
9 the utility's generation is unchanged.

10 As Exhibit No. 11 (KJS-4) shows clearly, if the
11 utility sells the excess 100 MW, the resulting amount of
12 generation by the utility (and the associated costs of
13 production) will be identical to the amount of the
14 utility's generation in the curtailment scenario. Said
15 differently, if the utility markets the excess
16 generation, then deliveries by QFs do not affect the
17 production costs that the utility would incur on its own
18 units as compared to the alternative of curtailing QFs to
19 the extent needed to match generation and load, except
20 that the revenue from the sale of the excess energy
21 results in a positive avoided cost for the utility for
22 the QF deliveries which would otherwise be curtailed.

23 Q. DOESN'T FPC'S PROPOSED PLAN RECOGNIZE THE ALTERNATIVE OF
24 MARKETING EXCESS GENERATION?

25 A. FPC's approach to this point is deficient in one crucial

1 respect.

2 **Q. PLEASE EXPLAIN.**

3 **A. FPC places a floor on the price it will quote for sales**
4 **during low load situations equal to the incremental cost**
5 **it would incur to generate during normal situations.**

6 **Q. WHAT'S WRONG WITH THAT?**

7 **A. As Dr. Shanker points out, in scenarios which involve**
8 **excess generation due to must-run units and firm QF**
9 **purchases, the utility's incremental cost of generating**
10 **the excess is zero. My related operational point is**
11 **that, for the purpose of determining whether QFs cause**
12 **the utility to incur negative avoided costs, the price at**
13 **which the excess is offered for sale is unrelated to**
14 **costs incurred to produce and is therefore irrelevant to**
15 **the calculation of avoided costs. The result of these**
16 **two principles is that FPC can offer the excess**
17 **generation at any price above zero without causing the**
18 **avoided cost calculation to show a negative result. If**
19 **it finds a buyer at any positive price, then it has**
20 **matched generation and load without curtailing QFs and**
21 **without incurring negative avoided costs.**

22 **Q. ISN'T THE IDEA OF REQUIRING A UTILITY TO SELL ITS**
23 **GENERATION AT ANY PRICE ABOVE ZERO A RADICAL CONCEPT?**

24 **A. Not at all. It is no different than the concept of "dump**
25 **energy," which is a fairly common, well documented**

1 utility practice.

2 Q. CAN YOU ELABORATE?

3 A. An excellent example of dump energy pricing occurs in the
4 New York Power Pool where the pool pricing rule for
5 intra-pool economy energy transactions is a "split-the-
6 savings" arrangement. The selling price is half way
7 between the average of the seller's incurred costs and
8 the average of the buyer's displaced costs. When a
9 utility is dumping excess generation during minimum load
10 situations, the cost attributed to that seller is zero.

11 A further example of dump energy pricing is the
12 procedure followed in the PJM Pool, whereby intra-pool
13 economy energy transactions are priced at the pool
14 "running rate", which is the pool's incremental
15 generation cost. For a utility in a minimum load
16 situation selling its excess generation, the selling
17 price would be the incremental generation cost for the
18 pool's marginal unit(s), which of necessity would be
19 below the incremental generation cost of any of the
20 selling utility's units.

21 Q. WOULD LOW PRICED SALES HAVE ALTERED THE PERCEPTION OF
22 FPC'S AVOIDED COSTS DURING THE CURTAILMENT INCIDENTS
23 DISCUSSED IN MR. SOUTHWICK'S TESTIMONY?

24 A. If the energy that was curtailed in each of Mr.
25 Southwick's seven curtailment episodes had instead been

1 sold, at any price above zero, then there would have been
2 no curtailment and no possibility of negative avoided
3 costs. There would also have been no "operational
4 circumstances."

5 "UNIT IMPACT" COSTS

6 Q. WHAT ARE THE "UNIT IMPACT COSTS" TO WHICH YOU REFER?

7 A. In his testimony, FPC witness Mr. Lefton describes the
8 impacts -- in terms of life cycle costs -- of a decision
9 to change a generating unit's mode of operation. He
10 purports to quantify such "unit impact costs" in terms of
11 dollars per cycling event. Mr. Southwick then
12 incorporates the costs developed by Mr. Lefton in certain
13 of his comparisons of production costs with and without
14 QF generation. Obviously, including such costs penalizes
15 the QF purchase "scenario."

16 Q. DO YOU DISAGREE WITH MR. LEFTON'S PREMISE?

17 A. I don't disagree with the proposition that adopting a
18 cycling mode of operation for a unit designed for non-
19 cycling base load operation would ultimately affect
20 capital and maintenance costs. However, it is grossly
21 inappropriate to include the costs calculated by Mr.
22 Lefton in the decision to curtail QF purchases or not to
23 curtail them. (In this regard, the Commission should
24 bear two things in mind. First, neither FPC nor Mr.
25 Lefton attributes FPC's need to cycle units designed for

1 base load operation to FPC's present, temporary low load
2 situation. That change in operational modes has already
3 occurred. Second, much of the "cycling activity"
4 consists, not of shutting down and starting up units, but
5 of changing their levels of output to track fluctuations
6 in load. The decision to curtail or not will have very
7 little effect on the extent to which FPC must engage in
8 this form of cycling.)

9 Q. WHY DO YOU BELIEVE IT IS INAPPROPRIATE TO INCLUDE THESE
10 COSTS?

11 A. First, any such "unit impact costs" are the results of
12 planning choices made years ago. Whether they are the
13 result of conscious long-term economic trade-offs or
14 simply of poor choices, any such impacts should be borne
15 by the utility, not the QPs with whom it has contracted
16 to buy firm power.

17 Next, it is fundamentally improper to incorporate
18 many of Mr. Lefton's "unit impact costs" into the
19 calculation of the utility's short term avoided energy
20 cost.

21 Finally, even if one were to regard these "unit
22 impact costs" as relevant to the exercise, Mr. Lefton's
23 computations are too speculative and too methodologically
24 unsound to serve any purpose in this proceeding.

25 Q. PLEASE EXPLAIN YOUR STATEMENT THAT ANY "UNIT IMPACT

1 **COSTS ARE THE RESULT OF PLANNING CHOICES.**

2 A. In planning generation resources to meet its future
3 loads, a utility has to plan to meet a load which varies
4 considerably over the months of the year and particularly
5 over the hours of each day and week. The utility
6 recognizes that its generation resources need to have the
7 ability to vary the amount of generation to match daily
8 load variations, as well as provide the ability to
9 economically commit appropriate amounts of generation to
10 meet the varying peak loads throughout the year.

11 In developing its plan for future resources, a
12 utility can choose from an array of different types of
13 resources to match its overall "cycling" capabilities to
14 the natural variations in the demands of its customers.
15 However, it is fair to say that the ability to cycle
16 results in higher total costs for the utility.

17 Although a utility might endeavor to make the
18 appropriate choices of generation resources, the results
19 of its planning, whether due to poor forecasting or bad
20 choices, may not always turn out well, or may
21 deliberately contain significant compromises, which
22 attempt to balance cycling ability against operational
23 economies.

24 Whatever the reason, when a unit which has not been
25 designed for cycling duty is called upon to perform

1 cycling on a regular basis, additional long-term
2 maintenance and/or capital costs, "unit impact costs",
3 can result.

4 **Q. DO YOU HAVE ANY PARTICULAR CHOICE BY FPC IN MIND WHEN YOU**
5 **DISCUSS THIS POINT?**

6 A. Yes, I have in mind the decision by FPC not to include
7 "dispatchability" or "schedulability" provisions in its
8 contracts with QFs resulting from the 1991 "Annual
9 Planning Hearing" (Docket No. 910004-EG). Such
10 dispatchability or schedulability of QF generation would
11 have added to FPC's overall cycling capabilities and
12 reduced or eliminated FPC's current minimum load
13 difficulties.

14 **Q. WHY IS IT INAPPROPRIATE TO FACTOR MANY OF MR. LEFTON'S**
15 **"UNIT IMPACT COSTS" INTO THE CALCULATION OF A UTILITY'S**
16 **SHORT-TERM AVOIDED ENERGY COST?**

17 A. In calculating utility avoided costs, it is wholly
18 appropriate to capture all recognizable costs associated
19 with the utility meeting the demands of its customers.
20 Once recognized, these costs can be incorporated in the
21 appropriate avoided cost which is calculated for purposes
22 such as determining economic levels of DSM as well as
23 determining payments to QFs.

24 Avoided costs are generally grouped into two main
25 categories--avoided capacity costs and avoided energy

1 costs. Avoided capacity costs include those costs
2 associated with financing, constructing and owning the
3 generating plants of the utility, including O&M costs
4 which are deemed to be independent of the utilization of
5 the individual generating units, i.e., "fixed" O&M costs.
6 Avoided energy costs include fueling costs and O&M costs
7 which are deemed to be dependent on the utilization of
8 the individual generating units, i.e., "variable" O&M
9 costs. The variable O&M costs are often collected and
10 expressed as an adder to avoided fueling costs.

11 It is important to include all O&M costs in either
12 the fixed or variable category, but it is not easy, nor
13 has it ever been easy, to correctly differentiate between
14 fixed and variable "labels" for many O&M expenses, or
15 between various categories of variable O&M expenses.

16 For a firm QF energy supply, it is not truly
17 necessary to be precise in the differentiation between
18 fixed O&M, commitment-related variable O&M and dispatch-
19 related variable O&M. However, for energy payments to
20 suppliers of non-firm as-available energy, it is
21 important to include only those dispatch-related variable
22 O&M costs which are avoided. Similarly, in short term
23 economy energy transactions, only appropriate variable
24 O&M costs need to be recognized.

25 In dealing with Mr. Lefton's "unit impact costs",

1 the largest single category of these costs relate to
2 plant capital expenditures and plant lives. Such costs
3 are included in avoided capacity costs, not avoided
4 energy costs. Others relate to costs of ongoing
5 analyses, studies and computer software. These are
6 general overhead expenses included in construction costs
7 and fixed O&M costs, and are included in the avoided
8 capacity costs.

9 Mr. Lefton has attempted to collect all cycling-
10 related costs and assign them on a per-start basis to be
11 used in short-term operational decision making. This is
12 clearly inappropriate.

13 Q. WHAT O&M COSTS DOES FPC UTILIZE IN ITS NORMAL DAY-TO-DAY
14 OPERATIONAL DECISION MAKING?

15 A. FPC utilizes only fuel costs and certain immediate "out-
16 of-pocket" operational expenses associated with unit
17 start-ups.

18 Q. WHY DO YOU BELIEVE MR. LEFTON'S APPROACH IS SPECULATIVE
19 AND METHODOLOGICALLY UNSOUND?

20 A. Mr. Lefton's analyses appear to rely on long-term
21 extrapolations from poorly conditioned short-term data.

22 Q. CAN YOU PROVIDE SOME EXAMPLES OF MR. LEFTON'S RELIANCE ON
23 THESE EXTRAPOLATIONS?

24 A. Yes. Consider Figure 4 on page 17 of Mr. Lefton's
25 Exhibit No. 6 (SAL-2). Mr. Lefton provides a 40-year

1 projection from only 20 years of actual data. Further,
2 if one looks at the available data behind the plotted
3 data points, one can see how sparse the data really is.
4 The 15-year point comes from a potential population of 47
5 units. The one to ten-year points have potential
6 populations of between 127 and 174 units that are even
7 newer. However, the 20-year point comes from a potential
8 population of only nine units. Obviously, the moderate
9 portion of the graph is heavily anchored by data from
10 large populations, while the upward tilt in the
11 Equivalent Forced Outage Rate (EFOR) v. age relationship
12 upon which Mr. Lefton's premise depends is heavily
13 influenced by the nine or less units which are 20 years
14 old. In addition, the analysis does not even attempt to
15 account for vintage as a factor influencing EFOR. The
16 nine units at age 20 were the earliest prototypes in
17 their size range. To ignore the impact of technological
18 maturity on the EFORS is foolish. Without conditioning
19 for vintage, the analysis and its extrapolation are
20 poorly founded.

21 **Q. CAN YOU PROVIDE ANOTHER EXAMPLE OF THIS SPECULATIVE**
22 **EXTRAPOLATION?**

23 **A.** Certainly. Consider Figure 5 on page 18 of Mr. Lefton's
24 Exhibit (SAL-2). The available pool of data for the 400
25 MW units graph only extends to about year 33. The

1 available pool of data for the 600 MW units graph only
2 extends to about year 30. The specific unit data
3 relating to the Illinois Power Baldwin Units, which were
4 a large part of this analysis, could only extend to about
5 year 23, since the first Baldwin unit only entered
6 service in 1970. The information on the 600 MW units
7 contained in Figure 5 is repeated in Figure 1 on page 36
8 of Exhibit No. 6 (SAL-2). In Figure 1, the additional
9 information on Capital Infusion Effects all lies beyond
10 the period of possible actual data and therefore has not
11 been derived from any actual operating experience.

12 Q. HAVE YOU EXAMINED MR. LEFTON'S REPORT ON THE STUDIES HE
13 PERFORMED FOR FPC ON CYCLING COSTS ASSOCIATED WITH ITS
14 UNITS?

15 A. Yes.

16 Q. DOES THAT REPORT PROVIDE ANY BETTER SUPPORT FOR HIS
17 CONCLUSIONS THAN YOU HAVE DISCUSSED ABOVE?

18 A. No. The report describes an incomplete exercise
19 resulting in what the authors describe as preliminary and
20 uncertain results. The report is replete with
21 disclaimers and caveats and dwells more on the work which
22 remains to be done than it does on the quality of the
23 results so far presented. To illustrate these points, I
24 have assembled several excerpts from the report as
25 Exhibit No. 11 (KJS-5).

1 The lack of supportable results is not at all
2 surprising given that FPC only funded three out of the
3 eleven phases of the study originally proposed by Mr.
4 Lefton. See Exhibit No. 11 (KJS-6). The three
5 completed phases amount to little more than superficial
6 preparatory exercises.

7 The Proper Measurement of Avoided Costs

8 **Q. WHAT IS THE APPROPRIATE TIME FRAME THAT SHOULD BE TAKEN**
9 **INTO ACCOUNT IN ASSESSING WHETHER QF PURCHASES WOULD HAVE**
10 **CAUSED FPC TO INCUR NEGATIVE AVOIDED COSTS?**

11 A. The appropriate time frame for evaluating the avoided
12 costs for a block of QF power, which may or may not be
13 curtailable depending on whether operational
14 circumstances and negative avoided costs are shown to
15 exist, is the same time frame that is used for the
16 evaluation of the commitment of the base load unit that
17 would have to be shut down as the alternative to
18 curtailment of a QF generation or the sale of excess
19 generation.

20 **Q. WHY IS THIS THE PROPER TIME FRAME TO ANALYZE?**

21 A. The burden is on the Company to demonstrate that the mix
22 of units that are committed to serve the system load at
23 the time FPC experiences a low load situation is the
24 appropriate (feasible least cost) set of resources needed
25 to serve the Company's load. Whether a unit is part of

1 the least cost feasible formula depends on costs incurred
2 during all hours for which FPC scheduled the unit to be
3 in service. Normally, for a system such as FPC's, this
4 time frame would cover the period of time for which the
5 unit was originally committed. Approximately one week is
6 the time between normal commitment decisions for base
7 load resources.

8 **Q. WHY HAVE YOU USED THE QUALIFIER "FEASIBLE" WHEN**
9 **DESCRIBING THE LEAST COST UNIT COMMITMENT?**

10 A. The unit commitment developed to serve FPC's load must
11 respect all of the constraints imposed by the contractual
12 obligations FPC has to its various electricity and fuel
13 suppliers, as well as any physical constraints of FPC's
14 own generating units.

15 As far as firm QFs are concerned, this means that
16 any FPC commitment which deliberately creates a potential
17 curtailment situation would be considered infeasible.

18 **Q. THEN, IS THE ANALYSIS OF NEGATIVE AVOIDED COSTS A TWO-**
19 **STEP PROCESS?**

20 A. Yes. The first step is to determine that the FPC unit
21 commitment schedule for the curtailment period was part
22 of the least cost feasible unit commitment schedule.

23 The second step is to evaluate the avoided costs for
24 a block of QF power equal in size to the maximum
25 curtailment over the period for which the unit, whose

1 shutdown would be the subject of the negative avoided
2 cost calculation, was intended to be committed, or for
3 the weekend-to-weekend interval, whichever is the lesser.

4 Q. IF THE UNIT COMMITMENT MUST BE FEASIBLE, WOULDN'T IT
5 FOLLOW THAT THERE WOULD BE NO NEED TO EXPERIENCE THE
6 MINIMUM LOAD CONDITIONS WHICH COULD LEAD TO CURTAILMENT?

7 A. In almost all cases that would be correct. However,
8 occasionally it could happen that conditions would change
9 during the period for which commitment decisions had
10 already been made, such that a previously feasible
11 commitment becomes infeasible, leading to the minimum
12 load situation with the attendant possibility of
13 curtailment. As examples, a change in load forecast or
14 a change in QF production expectations would represent
15 such a change in conditions.

16 Of course, any minimum load situation which is
17 foreseeable at the time commitment decisions are being
18 made for that time frame, and which the utility does not
19 take appropriate steps to avoid, does not represent a
20 valid curtailment occasion.

21 Q. HAVE YOU EXAMINED FPC'S CALCULATIONS OF NEGATIVE AVOIDED
22 COSTS?

23 A. Yes.

24 Q. WHAT LENGTH OF TIME DID FPC USE IN ITS CALCULATIONS OF
25 NEGATIVE AVOIDED COSTS?

1 A. FPC evaluated avoided energy costs for only those
2 individual hours during which the QF curtailments
3 occurred. To these costs FPC added the avoided start-up
4 costs, whenever they occurred. FPC analysis is carried
5 out over such a short time frame that the dominant cost
6 effect is the unit start-up cost, not replacement energy
7 costs as contemplated by the PURPA example.

8 Q. HAVE YOU DETERMINED WHAT THE RESULT WOULD BE IF THESE
9 CALCULATIONS WERE CARRIED OUT OVER A MORE APPROPRIATE
10 TIME FRAME?

11 A. Yes. For each curtailment episode, I have performed a
12 conservative analysis which shows that if the period of
13 analysis for each episode was increased to as little as
14 two days all negative avoided costs would vanish.

15 Q. HAVE YOU COMPLETED YOUR ANALYSIS OF FPC'S CALCULATIONS OF
16 NEGATIVE AVOIDED COSTS?

17 A. Up to this time, I have received from FPC, data files and
18 output reports for computer runs of their "Unit Commit"
19 software for periods of one to three days encompassing
20 each of the seven curtailment episodes in Mr. Southwick's
21 testimony. For each period of one to three days, there
22 are two runs. The first represents the system meeting
23 the actual remaining FPC load after considering the
24 actual QF generation, reflecting curtailment, using the
25 base load generating units which were committed, plus the

1 available non-base load resources. The second run
2 modified the remaining FPC load by using a transaction
3 which added back the curtailed QF generation and then
4 recommitted and redispached the system.

5 In addition, I received the Fortran source code and
6 executable code for the "Unit Commit" software used by
7 FPC. Because my computing facilities are not the same as
8 FPC's, I was not able to utilize the executable code.
9 Instead, I have been required to compile and link the
10 source code, using my Fortran compiler on my computer,
11 into an executable load module and then "de-bug" the
12 program prior to being able to commence complete studies
13 of FPC's analyses of negative avoided costs.

14 It may appear strange that I have to "de-bug" an
15 existing, working program. The "de-bugging" is necessary
16 because the PC 386/486 computers I am using provide a
17 much less forgiving computing environment for the Fortran
18 code of "Unit Commit" than does the IBM machine FPC uses.

19 I have reviewed the input files and output reports
20 underlying Mr. Southwick's assertions. At this point, I
21 have also been able to replicate several of the FPC runs.
22 However, because of various delays, including not
23 receiving the correct version of the source code until
24 late on Tuesday, April 4, I have yet to complete my
25 studies of FPC's negative avoided cost calculations. I

1 intend to complete my work with the program and will seek
2 to supplement my testimony if warranted.

3 However, my analysis to date has allowed me to reach
4 and support the conclusions that I have delineated above.

5 **Q. IN YOUR ONGOING EXAMINATION OF FPC'S NEGATIVE AVOIDED
6 COST CALCULATIONS HAVE YOU DISCOVERED ANYTHING UNUSUAL?**

7 **A.** Yes. In examining FPC's Unit Commit runs, I found a
8 number of significant problems.

9 In the January 2, 1995 episode, I found that the 258
10 MW of curtailment was 161 MW too much.

11 In the January 7 and January 8, 1995 episode, I
12 found that the system, with 281 MW of curtailment on the
13 morning of January 7 was still in an excess generation
14 situation by 36 MW. This resulted in the "without
15 curtailment" run shutting down both CR 4 and CR 2, when
16 one of them should have already been shut down in the
17 base case.

18 In the January 14, 1995 episode, I found that the 50
19 MW of curtailment still left the system in an excess
20 generation situation by 11 MW.

21 **Q. PLEASE SUMMARIZE YOUR TESTIMONY.**

22 **A.** At this time, I have determined that, for each
23 curtailment episode, alternative unit commitment
24 arrangements were available to FPC which would have
25 avoided the minimum load problems which led to FPC

1 curtailment of QF generation. Therefore, only if the minimum
2 load situations were the result of unexpectedly low loads
3 or unexpectedly high QF output could they be considered
4 legitimate potential curtailment events.

5 I have also determined that if indeed the
6 curtailment events were legitimate, they could have been
7 avoided by making sales of the excess generation at any
8 price above zero.

9 Further, I have conservatively determined that, if
10 the evaluations were made over periods of time comparable
11 to the commitment periods associated with the unit or
12 units which would incur the shutdowns (in fact, for
13 periods of less than two days), then there would be no
14 negative avoided costs.

15 Lastly, I have noted that FPC's acceptance of "must-
16 take" energy from Southern Company UPS purchase is
17 entirely responsible for the excess generation in two of
18 the seven cases.

19 Q. DOES THIS CONCLUDE YOUR TESTIMONY?

20 A. Yes, at this time.

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1 **BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION**
2 **SUPPLEMENTAL DIRECT TESTIMONY AND EXHIBITS**

3 **OF**

4 **KENNETH J. SLATER**

5 **ON BEHALF OF**

6 **ORLANDO COGEN LIMITED, L.P. AND PASCO COGEN, LTD.**

7 **DOCKET NO. 941101-EQ**

8 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

9 **A. My name is Kenneth J. Slater and my business address is**
10 **3370 Habersham Road, Atlanta, Georgia 30305.**

11 **Q. ARE YOU THE SAME KENNETH J. SLATER WHO FILED TESTIMONY IN**
12 **THIS CASE ON APRIL 10, 1995?**

13 **A. Yes, I am.**

14 **Q. WHAT IS THE PURPOSE OF YOUR SUPPLEMENTAL TESTIMONY?**

15 **A. As I stated in the testimony that I filed on April 10, I**
16 **was unable to include there the results of my own work**
17 **with FPC's Unit Commit program. Since I filed my**
18 **testimony, I have spent many hours debugging FPC's**
19 **program on my computers. Late on Sunday, April 23, I was**
20 **finally able to achieve runs for all of FPC's analysis**
21 **cases, which matched FPC's own runs.**

22 **Q. WHY ARE YOU JUST NOW TO THE POINT OF RUNNING FPC'S UNIT**
23 **COMMIT PROGRAM?**

24 **A. As I described in my earlier testimony, I did not receive**
25 **the same Unit Commit program that FPC used in the**

1 calculations that underlie Mr. Southwick's testimony
2 until April 4, 1995. When I tried to run it on my
3 computer, I found that there were numerous aberrations in
4 the source code that FPC's IBM mainframe computer would
5 "forgive," but that my stricter PC computing environment
6 either would not accept or would not treat in the same
7 way as does FPC's computer. Only after a painstaking,
8 tedious, and time consuming process of identifying and
9 correcting problems was I able to replicate all of FPC's
10 runs and vary them with my own alternative studies.
11 That's why I indicated on April 10 that I would
12 supplement my testimony if warranted by my additional
13 work with Unit Commit.

14 Q. DO YOU BELIEVE YOUR FINDINGS WARRANT THE SUPPLEMENTING OF
15 YOUR EARLIER TESTIMONY?

16 A. Yes, most definitely. In fact, the purpose of my
17 supplemental testimony is to provide information that is
18 critical to the Commission's analysis of FPC's case.

19 Q. PLEASE EXPLAIN.

20 A. In my testimony of April 10, I was limited to the
21 observations I could draw from the input files and output
22 reports that FPC supplied to me. I testified, among
23 other things, that FPC used too short a period to measure
24 avoided costs, and consideration of a more appropriate
25 time frame (which we consider to be 1 week) would lead to

1 the conclusion that FPC would not have incurred negative
2 avoided costs.

3 Now, with the benefit of having run the program
4 myself, I have determined that FPC's analyses, when
5 corrected for their errors, excluding the time frame
6 error, do not show negative avoided costs existing in any
7 of the seven cases included in Mr. Southwick's testimony.

8 Q. ON WHAT DO YOU BASE THAT STATEMENT?

9 A. For each event, FPC's claim of negative avoided costs is
10 based on a comparison of FPC's system costs in a "base
11 case" (with curtailment) and in a corresponding "change
12 case" (without curtailment). I have discovered within
13 each FPC comparison analysis errors or other flaws,
14 excluding changes in the time frame, which, when
15 corrected, have the effect of reversing FPC's conclusions
16 regarding negative avoided costs. My revised runs show
17 that, with respect to each of the curtailment events to
18 date, the system costs FPC would have incurred if it had
19 accepted the curtailed firm QF energy would have been
20 lower than FPC's costs of supplying that energy through
21 its own resources.

22 Q. PLEASE ELABORATE BY REFERENCE TO EACH SPECIFIC
23 CURTAILMENT EVENT.

24 A. I'll begin with the curtailment of October 19, 1994.
25 FPC's run for the change case identified the excess
26 generation; shut down Crystal River 1; determined that

1 measure wasn't enough to eliminate the excess; and shut
2 down Crystal River 2. This means the avoided costs
3 associated with the "change" (no curtailment) scenario
4 included the costs to start up two units.

5 **Q. WHY IS THAT AN ERROR?**

6 **A.** The minimum operating levels of CR1 and CR2 differ.
7 CR1's minimum is 120 MW; CR2's minimum is 140 MW. The
8 amount of the excess generation was more than the minimum
9 level of CR1, but less than the minimum level of CR2. In
10 other words, had the program shut down CR2 first, the
11 imbalance would have been eliminated without the
12 necessity of shutting down a second unit. I reran the
13 "change case" with this revision (shutting down only
14 CR2), and compared the avoided costs to the costs of
15 FPC's "base case" (no curtailment). There were no
16 negative avoided costs. Again, this comparison utilized
17 FPC's own preferred time frame--a parameter with which I
18 strongly disagree. (There was also a minor discrepancy
19 in the description of the University of Florida Unit
20 between the base and change cases.)

21 **Q. PLEASE PROCEED.**

22 **A.** There are two main deficiencies in FPC's comparison for
23 the January 1, 1995 event. The first main deficiency is
24 that there was no excess generation situation on this day
25 that warranted forcing a unit shutdown at all. The

1 second results from a difference in the data between the
2 base case and change case. In the base case, a start-up
3 fuel was specified for the CR coal units, but not
4 specified in the change case. This caused considerable
5 differences in the system production costs.

6 **Q. WHAT ABOUT THE JANUARY 2, 1995 EVENT?**

7 A. Again, FPC compared apples and oranges. The CR coal
8 units' start-up fuel was missing in the "without
9 curtailment" change case. Once I aligned the base case
10 and the change case, the "no curtailment" scenario came
11 out cheaper, even though the program shut down a unit in
12 the change case. The cost of the subsequent unit restart
13 was lower than the energy cost savings attributable to
14 the QF generation.

15 **Q. PLEASE CONTINUE.**

16 A. I'll take the January 7 and 8 and January 14 events
17 together because they share the same basic FPC flaw.

18 **Q. WHAT IS THE FLAW?**

19 A. In each instance, FPC's base (curtailment) scenario
20 leaves the system in an excess generation condition.
21 This defect places an additional "handicap" on the change
22 (no curtailment) scenario when costs are compared.
23 Simply by allowing the shutting down of the appropriate
24 unit and removing the excess condition in the base case,
25 I determined that the "no curtailment" alternative was

1 the cheaper option in each of these episodes. The
2 January 14 event was also complicated by there being no
3 start-up fuels for the CR coal units in either the base
4 or change cases.

5 **Q. PLEASE TURN TO THE JANUARY 30, 1995 CURTAILMENT EVENT.**

6 **A.** The January 30, 1995 analyses has three problems. First,
7 the base case still had excess generation. Second, the
8 change case had no start-up fuel for the CR coal units,
9 and third, "Unit Commit" incorrectly shut down two units
10 in the change case instead of one unit, to remove the
11 excess generation. After corrections for all of these
12 problems, the analysis returned a positive avoided cost.

13 **Q. IN THE JANUARY 7-8, JANUARY 14 AND JANUARY 30 ANALYSES,**
14 **WHAT WOULD HAVE BEEN THE RESULTS IF FPC HAD IN FACT**
15 **CURTAILED SUFFICIENT QF GENERATION TO AVOID THE EXCESS**
16 **GENERATION SITUATIONS IN THE BASE CASES.**

17 **A** Using FPC's (improper) short time frame of analysis,
18 these cases would have probably produced negative avoided
19 costs. However, using a longer time frame of analysis
20 for the curtailed QF generation, avoided costs are very
21 strongly positive.

22 **Q. HAVE YOU PERFORMED SUCH LONGER TIME FRAME ANALYSES?**

23 **A.** Yes. I ran the January 7-8 case with 317 MW of QF
24 generation curtailed for 48 hours, the January 14 case
25 with 61 MW of QF generation curtailed for 72 hours, and

1 the January 30 case with 124 MW of QF generation
2 curtailed for 24 hours. The lengths of the analyses were
3 dictated by the available data. In each case the avoided
4 energy costs for the curtailed QF generation were
5 strongly positive.

6 Q. HAVE YOU PREPARED EXHIBITS TO ACCOMPANY YOUR SUPPLEMENTAL
7 TESTIMONY?

8 A. Yes. I have prepared three exhibits. Exhibit No. 12
9 (KJS-7) summarizes the problems encountered with each of
10 FPC's avoided costs analyses, and remedial actions I
11 took. Exhibit No. 12 (KJS-8) summarizes the results of
12 my corrected FPC avoided cost analyses. It is a
13 replacement for page 1 of Mr. Southwick's Exhibit No. 7
14 (HIS-3). Exhibit No. 12 (KJS-9) summarizes the results
15 of my extended time frame analyses for the January 7-8,
16 January 14 and January 30 events.

17 Q. DOES THAT COMPLETE YOUR TESTIMONY?

18 A. Yes. It does.

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1 Q (By Mr. McGlothlin) Have you prepared a summary of
2 your testimony, Mr. Slater?

3 A Yes, I have.

4 Q Please proceed, sir. And would you provide it so
5 that the Commissioners will understand what relates to your
6 earlier work and what relates to the response to the rebuttal
7 testimony.

8 A Yes, I will.

9 This summary relates to the direct and the
10 supplemental direct testimonies. This testimony has three
11 principal purposes. The first is to address the general
12 framework of what constitutes a curtailable circumstance under
13 the rules implementing PURPA and the measures the utility can
14 and must take by way of mitigation to avoid the need to
15 curtail.

16 The second purpose of my testimony is to demonstrate
17 that FPC's specific methodology for comparing its costs of
18 generation with and without firm QF deliveries, or what they
19 curtail of the firm QF deliveries, is wrong. In doing so, I
20 disprove FPC's claim that the seven curtailments to date were
21 necessary to prevent FPC from incurring negative avoided
22 costs.

23 The third purpose of the testimony is to speak to
24 the applicability of Mr. Lefton's cycling costs to the
25 calculation of these avoided energy costs.

1 As to the first purpose, I agree with Dr. Shanker
2 that the proposed plan for curtailment is deficient because it
3 does not require FPC to interrupt all purchases from the
4 utilities prior to curtailing firm QFs. The federal standard
5 which the Commission's rule implements is concerned only with
6 increases in the cost of operating the utility's generators,
7 not its purchases from other utilities. Significantly, I have
8 determined that in two of the seven curtailments to date, the
9 amount purchased from Southern Company exceeds the size of the
10 curtailment.

11 FPC's deficiency in this respect is material.

12 Next, a sale of any excess generation is to be
13 desired. Because when the excess is sold and QF deliveries
14 are accepted, the overall transaction leaves the Utility's own
15 generators and, therefore, its cost of generating unaffected.
16 Importantly, a sale of the excess energy at any price above
17 zero will ensure that the Utility will not experience negative
18 avoided costs. This is a mathematical truism that I can
19 explain in more detail if you wish.

20 The concept of lowering the market price of excess
21 energy is neither new nor novel in the electric utility
22 industry. As easy examples, transactions between utilities in
23 New York and Pennsylvania, New Jersey, Maryland and Delaware,
24 apply the concept frequently. FPC's refusal to follow suit is
25 a serious deficiency in its proposed plan.

1 Also, on this point, I have personal experience of
2 negotiating with prices at less than cost when I used to buy
3 and sell power between the state of New South Wales and the
4 state of Victoria on the New South Wales systems, when I
5 worked for the New South Wales system. I used to buy energy
6 overnight at less than the cost of production from Victoria
7 because they didn't want to shut units down.

8 The next general principle I want to mention is that
9 a utility has an obligation to take system constraints, such
10 as a block of firm QF contracts, into account when it makes
11 decisions regarding which units to commit. I prefer to use
12 the term "feasible least-cost combination of units" to
13 describe the parameters which FPC or any utility must respect
14 when it makes such decisions.

15 In four out of the seven curtailment episodes, FPC
16 had committed all five of its Crystal River baseload units
17 prior to encountering a low load dilemma. In the other cases,
18 it had committed four of the five. During a period of
19 expected low load, such heavy commitment of baseload units
20 invites conditions of imbalance.

21 If a utility chooses to overcommit its baseload
22 units for any reason when it has the ability through
23 short-term planning to avoid the imbalance by adhering to
24 feasible least-cost planning, the situation can be thought of
25 as being their own making and the utility, not the firm QFs,

1 should bear the consequences.

2 In all seven episodes to date, FPC had alternative
3 commitment schedules available to it.

4 I turn now to the issue of negative avoided costs.
5 To test for the presence of negative avoided costs, one first
6 calculates the costs of generation that FPC incurred by
7 meeting all of the load with its own units and then compares
8 that with the generation costs FPC would have incurred with
9 its own units if FPC had continued to accept deliveries from
10 firm QFs instead of curtailing.

11 The first scenario is called the no curtailment or
12 base case -- sorry. The first scenario is called the
13 curtailment or base case. The second is called the no
14 curtailment or change case. And I hope I didn't turn those
15 around, so I'll state that again.

16 The base case is the case where the utility keeps
17 its generation on line and curtails the QF generation. The
18 change case is the case where the utility makes believe it
19 adds back the curtailed QF generation and lets a unit or two
20 shut down as a consequence.

21 I discovered that FPC's comparisons are fraught with
22 severe problems. They provided comparisons for the seven
23 events that they claimed showed negative avoided costs. That
24 is, that the cost of accepting the curtailed QF deliveries
25 back again was greater, the cost of running the system under

1 that scenario was greater than the cost of running the system
2 under the scenario of curtailing.

3 First in its analyses, FPC compared costs with and
4 without QFs only during the hours of actual curtailment. The
5 only hours where they considered whether the QF generation was
6 there or not were those hours where they curtailed. That was
7 the only block of QF that was evaluated in their comparisons,
8 the piece that was curtailed.

9 This is inconsistent with the longer time frame FPC
10 uses to make commitment decisions. It doesn't make commitment
11 decisions for three, four, five hours; it makes them for at
12 least a day, probably longer, up to a week.

13 FPC's abbreviated period excludes the benefits that
14 the QFs would confer during the period in which the removed
15 unit would have been committed, like a whole day or even
16 longer. It only confined the period of removing the QFs to
17 the actual curtailment. They, in doing it this way, they
18 isolated the single factor of the unit startup cost from the
19 offsetting benefits that the QFs could provide during other
20 hours.

21 But more importantly, even if one sets aside the
22 period of analysis and just looks at FPC's calculations for
23 what they were within their own time frame, the actual
24 comparisons were full of errors and they violated the
25 principles that govern analyses like these.

1 For the comparison to be meaningful in each one of
2 these cases, the change case must be identical in all respects
3 to the base case except that you replace the QF energy that
4 was curtailed.

5 Also, one would expect the generation of load to be
6 in balance in the base case. There wouldn't be any excess or
7 deficiency, we would have a proper case in the base case and
8 we would have a proper case in the change case. We didn't
9 have that.

10 Among other things, I found that in several
11 instances the data sets for FPC's base case and change case
12 did not match. The mismatches included startup fuels in one
13 case but missing from the other case. Different unit minimum
14 capacities in the two cases. In three of their runs, I found
15 that the base cases had excess generation and that the change
16 cases didn't have excess generation.

17 I found one case that didn't even need a unit shut
18 down at all, there was no real excess generation and it didn't
19 represent a minimum load problem at all.

20 I also found a problem in the computer program that
21 they were using to do these analyses, and that this problem
22 with the unit commit program was that it would shut down more
23 units than it needed to shut down. And it did this because it
24 seems to do its shutdown on a priority basis, it calculates an
25 order on which it would shut units down and then proceeds to

1 honor that order irrespective.

2 For example, one of the cases there needed to be a
3 curtailment or they had a curtailment of more than 120
4 megawatts but less than 140 megawatts. It could have been
5 gotten rid of by shutting down Crystal River 2 but not by
6 shutting down Crystal River 1.

7 But the program preferred, it had a preference order
8 for shutdowns, and it preferred to shut down Crystal River 1
9 before looking to shut down Crystal River 2. So the program
10 shut down Crystal River 1, saw that it still had excess
11 generation, so decided to shut down the next unit in line,
12 being Crystal River 2. So it shut them both down instead of
13 just shutting down Crystal River 2, which would have been the
14 economical thing to do.

15 It did that in two of the runs. The other run, it
16 shut down Crystal River 1 and Crystal River 4 instead of just
17 shutting down Crystal River 4.

18 Once I corrected the various problems and made sure
19 that I directed the unit commit program not to do silly things
20 like I just described, I reran each one of the seven cases and
21 found that there were positive avoided costs, not negative
22 avoided costs, in each one of the seven cases.

23 When I allowed each case to operate to produce a
24 feasible schedule for satisfying the load in the base case and
25 again in the change case, and comparing them, dividing by the

1 about half the price of the light oil on a Btu basis and take
2 about a quarter or more of the costs off the startup.
3 Materially affect it.

4 The second area on that testimony relates to the
5 seven individual cases, and I would like to refer to you the
6 page that's been labeled Exhibit 13. And so far I've had the
7 time since I got the databases that we used for the rebuttal
8 testimony, since I got hold of those, I have been working on
9 them fairly constantly. And I have managed to work my way
10 through six of the cases; I still have one that I have not
11 finished yet, which is at the bottom of page.

12 But in the six cases that I have finished, each one
13 of those cases I can do the change case better than Florida
14 Power has done it and result in positive avoided costs rather
15 than negative avoided costs.

16 In the first instance, the October 19, 1994, event,
17 I have described what the base case run looked like or the
18 results of it. And there was some reduction in minimums for a
19 couple of Crystal River units; CR-4 was reduced as low as 149
20 megawatts and CR-5 was reduced as low as 288 megawatts.

21 The FPC change case cycled over Crystal River 1 for
22 six hours. However, the constraints that were put into the
23 program to allow the generating units to get down to lower
24 minimums in the base case weren't removed in the change case.
25 So these units were pegged down there at that lower minimum,

1 they weren't allowed to seek a higher level when Unit 1 was
2 shut down.

3 I found that I didn't want to shut down Unit 1, I
4 wanted to shut down Unit 4 for six hours, cycle it off for six
5 hours. And I released these constraints which are holding
6 down the generation on the other units of FPC, and I got a
7 positive avoided cost with a correct evaluation and a better
8 shutdown strategy. I got a positive avoided cost of \$5.87 per
9 megawatt-hour.

10 In the case on January 2, the change case cycled off
11 Crystal River 4, shut it down; and then a few hours later at
12 0500 started up Crystal River 2, which had been idle. And it
13 also started up a Bartow unit an hour later to get enough
14 generation back on the system to serve the load.

15 With those two startups, Crystal River 2 after it
16 had been out of service a long time and the Bartow unit, there
17 was a negative avoided cost. However, if one took Crystal
18 River 4 and restarted it after four hours -- after, sorry, six
19 hours. Crystal River 4 restarted after six hours, a nice hot
20 start, a cheaper start than starting a unit that had been shut
21 down for some time, one ends up with a positive avoided cost.
22 One should always take the best strategy in these things.

23 Now, that particular one there was probably due to
24 this priority order that this unit commit program seems to do
25 all of its own accord. I looked at the priorities there and

1 it said, all right, the best unit to shut down is Crystal
2 River 4. It preferred to shut down Crystal River 4 out of the
3 units that were on, of course.

4 But then when it got to restarting its units, it
5 believed that the economics of Crystal River 2 was better than
6 Crystal River 4, so it started up Crystal River 2. And that
7 wasn't quite enough generation, so it had to start up a Bartow
8 unit, as well, to get enough capacity back on line. But that
9 was a more expensive schedule.

10 Now, looking at the case on the 7th of January, we
11 get a similar occurrence. I have changed what has been the
12 replacement operation. FPC's case cycled off Crystal River 4
13 all day, cycled off Crystal River 2 for six hours, and also
14 started up Bartow 1. What I did was cycle Crystal River 2 off
15 for six hours and cycle Crystal River 4 off for seven hours.
16 I brought Crystal River 4 back, plus I removed, again, the
17 artificial constraints that had been added to allow some of
18 the Crystal River units to operate at very low minimums during
19 the base case. I think that was an oversight on Florida Power
20 Corp's part to not fix those constraints.

21 On the 8th of January, which was the day after that
22 previous one, because I hadn't cycled Crystal River 4 off all
23 day and left it out of service, I brought it back again.
24 Crystal River 4 was already on so I didn't have to start
25 Crystal River 4 in my analysis, whereas they did have to start

1 Crystal River 4. And the cost of that startup was a big
2 penalty on the operation on the 8th and gave rise to negative
3 avoided costs of a high order.

4 Because I already had Crystal River 4 on, I was able
5 to decide all I needed was a very small -- not a very small, I
6 needed a reduction of 35 megawatts in the minimum of Crystal
7 River 5, which is the type of reduction that Florida Power
8 Corp has been showing on a number of occasions in these runs.
9 And with that, I was able to get through that case with a
10 positive avoided cost of \$14.25 per megawatt-hour.

11 Each one of these cases goes on in the same vein.
12 An alternative operating strategy that the program is not
13 giving but which the human individual can give produces a
14 better schedule.

15 And I think it was Ms. Brousseau in her testimony
16 who said, in criticism of my analysis, that, you know,
17 computer programs don't run the Florida Power Corp system,
18 people do. I'm paraphrasing, I don't have exactly the right
19 words there. I agree. You can't run these programs and just
20 blindly accept the answer, you have to look at them, you have
21 to decide whether that was the best operation. If you do
22 that, I contend you're going to find positive avoided costs.

23 The case I haven't yet finished is the one for
24 January 1st. I'm having a little problem with that one
25 because the notes I was reading about that particular event

1 told me that they reduced Crystal River 1's generation down to
2 a very low level, namely, to about 73 megawatts on one
3 occasion, instead of its normal minimum of 120. To do that, I
4 assume they had to get it down to a single coal pulverizer
5 operation. And to maintain flame stability, they would have
6 had to have put in the ignition torches, the light-up fuel --
7 in other words, the light oil.

8 I came across a note that said, to get down to 100,
9 they would have to be burning a thousand gallons of light oil
10 per hour. I have to figure out how to factor that into this
11 particular evaluation in this program. This program doesn't
12 have a feature for supplemental fuel firing for those lower
13 load levels and I will have to work out how I can do that.
14 Because the cost of that additional oil is quite material here
15 to whether there's a positive or negative avoided cost in some
16 of the operational strategies you could work out for this.

17 Sorry this is a little disjointed, but I haven't had
18 much time to get this one ready. But that's all I have to say
19 about that testimony. Thank you.

20 MR. MCGLOTHLIN: Commissioner Clark, since we had no
21 opportunity to develop this in written form, may I ask one or
22 two clarifying questions to make sure that the presentation is
23 complete?

24 CHAIRMAN CLARK: Go ahead, Mr. McGlothlin.

25 Q (By Mr. McGlothlin) Mr. Slater, would you compare

1 the base case that was the subject of Ms. Brousseau's
2 testimony with the base case that is the subject of your
3 alternative change case?

4 A Could you ask it again.

5 Q Yes. Are there any differences between the base
6 cases that Ms. Brousseau used and the base cases you used?

7 A No. I used precisely the same base cases, I did not
8 touch those base cases at all. All I did was create
9 alternative change cases.

10 Q Are there any differences in the time frames you
11 used and the time frames she used?

12 A No. As I say on the top of the right-hand column on
13 Exhibit 13, I was using FPC's methodology and time frame, not
14 my own time frame.

15 MR. MCGLOTHLIN: Those are all the questions I have.
16 If that completes your summary?

17 WITNESS SLATER: Yes, it does, Mr. McGlothlin.

18 MR. MCGLOTHLIN: Mr. Slater is available for cross
19 examination.

20 CHAIRMAN CLARK: Thank you. Sydney, do you need a
21 short break?

22 THE REPORTER: I'm fine.

23 CHAIRMAN CLARK: Okay. Mr. Watson?

24 MR. WATSON: No cross.

25 CHAIRMAN CLARK: Ms. Rule?

1 MS. RULE: No cross.

2 CHAIRMAN CLARK: Mr. Wright?

3 MR. WRIGHT: Thank you, Madam Chairman.

4 CROSS EXAMINATION

5 BY MR. WRIGHT:

6 Q Good afternoon, Mr. Slater. I just have a couple of
7 questions for you.

8 In your testimony, I think your regular direct
9 testimony, you criticize Mr. Lefton's evaluation and inclusion
10 of unit impact costs related to starts and stops and cycling
11 effects; is that correct?

12 A Yes, I do.

13 Q We heard testimony this morning, I don't believe you
14 were in the room, that Florida Power Corporation's coal-fired
15 power units have on average over the past seven years or so
16 experienced between 50 and 160 equivalent hot starts per year.
17 My question for you, sir --

18 A This is Mr. Lefton's equivalent hot starts?

19 Q Yes, sir, those were the numbers that he reported to
20 the Commission this morning.

21 My question for you, sir, is if we defined one unit
22 cycle as one unit cycling on and off, if we have, say, five,
23 six, seven or eight unit cycles per year over the next five
24 years, is it possible that the effects of those cycles would
25 be difficult to discern in the total maintenance costs

1 incurred for those units over a five-year period?

2 A Well, I think they would.

3 Q Excuse me, would what, sir?

4 A Be difficult to discern. That was the question.

5 Q All right, proceed.

6 A When one talks about a total number of equivalent
7 hot starts or actual starts, you have to think in terms of
8 what Mr. Lefton talks about when he talks about fatigue.

9 Fatigue is sort of the result of, you know, the
10 application of the same sort of stress a number of times. And
11 I don't know what the fatigue limits are on a lot of the
12 components in these units. Mr. Lefton may have a better idea
13 than I do, and I'm sure he does. But you have fatigue limits.
14 And the addition of another five starts a year for a couple of
15 years on a unit, you might not approach the fatigue limit of
16 that unit in its lifetime, it may have a very large fatigue
17 limit on a lot of the components.

18 You may cause the fatigue limit to be hit a few
19 months earlier, judging by this 50 to 160 equivalent hot
20 starts per year. If I just add in another 20, I might hit the
21 fatigue limit a couple months earlier than I otherwise might
22 on some other components.

23 So those are the sorts of effects that I think one
24 would be dealing with, not something that's going to hit you
25 fair between the eyes just because you happened to turn the

1 unit off and back on again one day.

2 Q When you say it's not something that would hit you
3 fair between the eyes, is that a colloquial way of saying that
4 you wouldn't incur immediate costs associated with the cycling
5 event?

6 A That's right, I don't believe you would see
7 immediate costs of the magnitude that Mr. Lefton is talking
8 about because one day I turned the unit off and turned it back
9 on again.

10 Q Do you have any experience in power plant
11 maintenance and maintenance scheduling?

12 A Oh, I have some experience as a kid, I suppose, in
13 the maintenance. Some hands-on in that, plus some experience
14 as a slightly older person as a Professional Engineer doing
15 some maintenance scheduling, yes.

16 Q Is it typical that a utility will keep track of
17 little things that need to be done to a unit and then, when
18 there is an outage event where it is cycled off for whatever
19 reason, it will try to get in and do as many of those
20 accumulated maintenance jobs as it can do during that event?

21 A The maintenance staff of the power plant keep their
22 list of jobs that need to be done and they keep their stack of
23 defect labels, what not, as we used to call them. And they
24 take every opportunity with the staff they have available at
25 the time to fix these little, little problems each time a unit

1 comes down.

2 Q If FPC were to cycle a coal unit off in order to
3 avoid curtailing QF purchases, could it during that event,
4 during such an event, go in and do a number of these
5 maintenance jobs?

6 A There are quite a number of different types of
7 maintenance jobs that, if they were pending, could be
8 attempted during such a shutdown. Work on things like fans
9 and some of the air duct work wouldn't require very much
10 cooling down, if any. Work on various control systems
11 wouldn't require any cooling down.

12 You couldn't do something inside the boiler in that
13 time, it doesn't have time to cool down. But there are a
14 number of areas that you could get at in that time quite
15 successfully.

16 Q And could such a practice enable them to avoid a
17 future cycle off event or a future outage event where they
18 might otherwise have to deal with those?

19 A If the little piece of maintenance they had in mind
20 was a preventative nature, it may be quite helpful in avoiding
21 some future outage.

22 MR. WRIGHT: Thank you, Mr. Slater, that's all I
23 have.

24 CHAIRMAN CLARK: Mr. Sasso?

25 MR. SASSO: Thank you.

CROSS EXAMINATION

1
2 BY MR. SASSO:

3 Q Mr. Slater, I just wanted to begin by clarifying a
4 couple of details about your background. I understand that
5 you have had operational experience with two utilities; is
6 that right?

7 A Yes.

8 Q New South Wales is one?

9 A Yes.

10 Q And Ontario Hydro is another?

11 A Yes.

12 Q And at the time that you worked at these utilities,
13 neither bought power from cogenerators like the QFs involved
14 in this case; is that right?

15 A Back in those days, there weren't independent power
16 producers of the type that have occurred since PURPA.

17 Q And neither of these utilities had to deal with
18 issues of curtailment of cogen power, then, is that right?

19 A No, we didn't have to deal with curtailing QFs.

20 Q And neither of these utilities was regulated by FERC
21 or, obviously, the Florida Public Service Commission; is that
22 right?

23 A No, they're geographically removed from that.

24 Q I would like to talk to you about some areas that
25 you covered in your prefiled testimony but you omitted, I

1 think, from your oral summary today. But I believe these are
2 areas that the intervenors have focussed on in this
3 proceeding.

4 You have concluded and you contend in your prefiled
5 testimony that Florida Power's curtailments in this matter are
6 improper, first, because Florida Power subordinates firm
7 purchases from QFs to purchases from the Southern Companies;
8 is that right?

9 A Yes.

10 MR. MCGLOTHLIN: Did you say proper or improper?
11 Gary, I'm sorry, I didn't understand.

12 MR. SASSO: Let me rephrase it.

13 Q (By Mr. Sasso) You have contended that Florida
14 Power's curtailments are improper because of a failure to
15 subordinate Southern Company purchases to QFs purchases; is
16 that right?

17 A Yes. And for that I rely on our other witness,
18 Mr. Shanker -- or Dr. Shanker, I'm sorry.

19 Q You would concede that Florida Power's contract with
20 the Southern Companies is a must-take contract; is that right?

21 A It has been described to me as a must-take contract,
22 yes.

23 Q And you --

24 A I see in these runs and in the records of operation,
25 Florida Power taking that energy in the middle of the night

1 when its cost is considerably higher than its value, I would
2 have to say that it has to be a must-take contract.

3 Q And you have contended in your testimony in this
4 matter that Florida Power's commitment of its resources must
5 be, quote, "realistic," close quote; is that right?

6 A Yes.

7 Q And you mean by this that Florida Power must respect
8 its constraints, correct?

9 A That's right.

10 Q In fact, you would agree that the unit commitment
11 developed to serve Florida Power's load must respect all the
12 constraints imposed by the contractual obligations Florida
13 Power has to its various electricity and fuel suppliers,
14 correct?

15 A Yes.

16 Q And you would agree that Florida Power's contract
17 with Southern is a contract with a supplier of electricity?

18 A Oh, certainly. And I would make the unit commitment
19 schedule having in mind that contract as well as all the QF
20 contracts.

21 Q Okay. Now, you argue in relation to the unit
22 commitment issue that Florida Power does not include adequate
23 forward planning to eliminate minimum load problems through
24 realistic unit commitment; is that right?

25 A I don't know whether I said that they didn't do it,

1 but I'm just saying they must do it, as far as I'm concerned.
2 They are to do it. I wasn't saying they weren't doing it, but
3 I'm saying they must do it.

4 Q And it is your position that Florida Power should
5 plan a week ahead, basically Friday-to-Friday, with respect to
6 unit commitment decisions?

7 A I would imagine that Florida Power would look at its
8 unit commitment from weekend to weekend and see what they were
9 going to run that week, perhaps what they could leave off that
10 week, allow somebody to do some work on it if somebody had
11 some short-term maintenance. All of these things I believe
12 would be normally looked at on a weekend-to-weekend basis.

13 Not only on a weekend-to-weekend basis, all through
14 that week I believe they would be looking forward to at least
15 that weekend and perhaps they would start to look at the
16 following week.

17 Q Now, in that connection, Florida Power would be
18 looking at weather forecasts; is that right?

19 A Weather forecasts, the time of the year, loads
20 experienced last year at this time of the year under similar
21 weather conditions or under different weather conditions, with
22 the knowledge of the responsiveness of the load to weather
23 conditions, trying to forecast what may be the load this
24 coming week.

25 Q And the Company should attempt to develop schedules

1 committing its various resources in order to develop the
2 cheapest schedule it can; is that correct?

3 A It should develop the cheapest schedule that it can
4 subject to the feasibility of the schedule, respecting all of
5 those constraints.

6 Q And in this regard, Florida Power should compare a
7 schedule of operation with the QFs and compare that to a
8 schedule without the QFs for the upcoming week; is that your
9 position?

10 A I think that if you are looking at -- no, it is not
11 my position that they should do that all the time. My
12 position is if they look at their schedule for the following
13 week and say, "This is crazy. You know, I can't run Crystal
14 River 3," as a way out example, "I have got no room to run
15 Crystal River 3." Then I would seriously consider that I
16 might have a problem.

17 I would then say, "All right, let me look at
18 curtailing some QF." I'll take out 100 megawatts of QF and
19 see if I can now run Crystal River 3. Now, I would be doing
20 that because I would consider that my schedule should allow me
21 to run at least a reasonable amount of my good baseload
22 resources. And I would think that leaving out Crystal River 3
23 on the account of a minimum load problem is a bit much.

24 Q And you would also be concerned about taking out
25 baseload coal units that were needed for load control?

1 A I would be concerned about taking out too many
2 baseload coal units. I would consider taking out some, I
3 would consider scheduling maintenance during my potential
4 light load periods to make the most of those light load
5 periods as far as maintenance activity was concerned. This is
6 even longer term forward planning than the week ahead stuff.

7 Q Now, I understand that you are suggesting that,
8 sensibly, Florida Power ought to plan for the upcoming week by
9 projecting a schedule or would take off a baseload unit for
10 the whole week; is that right?

11 A I would look at that schedule as being the feasible
12 schedule without the baseload unit. I would then, if I was
13 the person doing the schedule, have a look and see, "All
14 right, if I were to run that unit and because I ran it, what
15 if I did have to shut it down one night during that week?
16 Would it still be profitable for me to put that unit on the
17 system, even though I'm going to shut it down one night?"

18 And if the answer was yes, it's a better schedule, a
19 cheaper schedule, to put that extra unit on, my risk, then
20 shut it down one night, my own risk, then I'll do that. After
21 all, I may be able to sell a little something that night and
22 keep it on.

23 Q Now, isn't it your contention that Florida Power
24 ought to make these unit commitment decisions by making a
25 decision to cycle off a baseload unit for an entire week as

1 opposed to just a few hours?

2 A No.

3 MR. MCGLOTHLIN: Could I ask a verifying question?
4 Does the question assume a low load situation or is this a
5 more general normal situation?

6 MR. SASSO: More generally.

7 MR. MCGLOTHLIN: Okay.

8 A I would normally look to what I should be committing
9 for that week, what I can accommodate that week with my best
10 resources.

11 Then I would be incrementally looking at what if I
12 had one more baseload unit, what happens then? And if the
13 answer is, okay, if I add one more baseload unit I'm likely to
14 have to shut it down at least one night during the week but
15 for the rest of the hours in the week I'm going to make more
16 money than it is ever going to cost me to shut that unit down,
17 therefore, on the basis of that, one would normally decide,
18 Let's put the unit on and be prepared to shut it down. That's
19 the profitable thing to do. But I wouldn't be requiring my
20 QFs to absorb the shutdown, that's what I wouldn't be doing,
21 because I would be looking upon them as a firm resource.

22 Q (By Mr. Sasso) I'm trying to understand what you
23 are suggesting we ought to be doing in the scheduling of our
24 resources. In your deposition, you were asked the following
25 questions:

1 "You said you would start with the resources of the
2 QF and then build around that." I'm at Page 159.

3 "Answer: I would take the expected production of
4 those QFs according to their contracts and put that in as
5 fixed generation in the schedule.

6 "Question: Then if you are taking them as fixed,
7 how would you ever conclude or how could you ever conclude
8 that a curtailment would be appropriate?

9 "Answer: If I didn't like the schedule I was
10 getting, if I could see that there were problems with that
11 schedule and I couldn't run certain of my units that I thought
12 I might be able to run, then I would look at chopping out some
13 of that generation and seeing if I could then run a cheaper
14 schedule without that, take 100 off, take 200 off, take 300
15 off and see how the rest of the production costs turn out.

16 "Question: And then when you say that you would
17 take 100 off, for what period?

18 "Answer: For the week.

19 "Question: Would you have to take off --

20 "Answer: For the week.

21 "Question: And if your analysis showed that it
22 would be cheaper to proceed in that fashion, would you then
23 curtail the QFs for the week in that amount?

24 "Answer: Yes."

25 Now, are you suggesting -- do you stand by that

1 testimony?

2 A I also put in the day after that a clarifying note
3 on that particular Q and A. In my analysis, I would have to
4 be able to do without that QF for a week. In the practical
5 sense, if I had decided in my analysis that I would curtail
6 QFs that week, I would say, "All right," to the QF, "I've
7 decided that because I can't, for example, run Crystal River
8 3, you have to be curtailed this week. now, I expect, though,
9 that for a large number of hours during the week, I could take
10 your energy. But you would have to be off when I want you
11 off."

12 And I would endeavor to get the QF not to be off for
13 the whole week; but when it was profitable to take the QF
14 energy, I would take it.

15 Q All right, now, we're talking about looking ahead
16 for the week on Friday or Monday --

17 A Yes.

18 Q -- looking ahead for the whole week and we're
19 talking about a sensible commitment of unit resources,
20 correct?

21 A Yes.

22 Q Just to be clear in what you are saying, do I
23 correctly understand your position that Florida Power ought to
24 be making unit commitment decisions for the upcoming week?

25 A Yes.

1 Q And it will be making those decisions, including a
2 decision whether to curtail or not, based on forecasts for
3 that upcoming week; is that right?

4 A Yes.

5 Q And it will run alternative schedules projecting
6 that it may be running baseload units for that week; is that
7 right? Just for an example.

8 A It would be doing a schedule that would include a
9 number of baseload units, yes.

10 Q And my point is that it is your position that
11 Florida Power ought to be committing its units for that entire
12 week in comparing these alternative --

13 A They should be working out their commitment
14 schedule, I believe, on a weekly basis. It is not necessary
15 that units be in for the whole week. They might work out a
16 commitment schedule that says, "All right, come Thursday
17 evening, I don't think I'm going to need Crystal River 2 for
18 Friday, Saturday or Sunday. I certainly won't need it or
19 can't accommodate it Sunday, I'm going to shut it down on
20 Thursday night." That might be the commitment on Crystal
21 River 2 for that week.

22 Q Now, you're also suggesting that Florida Power ought
23 to compare the cost of operating with the QFs and the cost of
24 operating without the QFs for the upcoming week; is that
25 correct?

1 A No. I said if I could not develop a schedule that I
2 thought was a good, reasonable schedule in that there was some
3 resource or other that was being left off, then I would
4 consider that I should be able to run.

5 Now I give you the ridiculous example of Crystal
6 River 3. That would be obvious to anybody that there's
7 something wrong if I can't run Crystal River 3. I would then
8 look at what have I got to do to be able to run that resource?
9 Should I curtail?

10 Q Just to be clear, our objective is to develop the
11 cheapest schedule for that week; is that right?

12 A Feasible. Cheapest reasonable schedule; and in
13 developing that feasible schedule, the QFs are firm
14 purchasers.

15 Q And Southern contract is a firm --

16 A Is a firm purchase also.

17 Q And in connection with determining a feasible
18 schedule, we will also need to look at system requirements for
19 operation; is that right?

20 A All of the system requirements.

21 Q And you're suggesting that if we do these
22 alternative schedules it may be an acceptable outcome for you
23 that we curtail QFs for a week?

24 A That in your analysis you curtail them for a week.
25 You have to be prepared to do without them for a week in your

1 calculation of negative avoided costs. This is what I
2 believe.

3 Now a week, you might be able to argue for something
4 less than a week. You might say, "Because our units only have
5 six-hour minimum shutdown times, we don't look at a week, we
6 look at three or four days." Fine, I'll take three or four
7 days. But a week is a normal commitment cycle on a lot of
8 units in this country. That's where the week comes from. The
9 program you're using, the unit commit program, is a 168-hour
10 program for this purpose. It is a very common commitment
11 period.

12 Q Of course, if you are looking ahead a week and you
13 are measuring the costs of curtailments a week at a time,
14 you're going to capture not only hours in which QF energy may
15 not be economic but you are going to capture some hours where
16 it may be economic; isn't that right?

17 A Well, on an hour-by-hour basis, whether the QF --
18 whether you would rather have it or not rather have it for
19 that hour, you're going to find some good ones and some bad
20 ones. Very few bad ones, I think, given the pricing mechanism
21 in this state.

22 Q To be clear on this, do I understand you are
23 suggesting as we go into the week you would accept the fact
24 that we may need to make midcourse corrections?

25 A You always have to be prepared to make midcourse

1 corrections.

2 Q And if we decided to curtail QFs, for example, and
3 as we got into the week it turned out load was heavier than
4 anticipated, we could invite some of them back on; is that
5 right?

6 A You might even want to invite some of them back on
7 even if the load is exactly what you expected, and say, "All
8 right, you can come on during these hours but you have got to
9 be off during these hours."

10 Q And conversely, if we decided not to curtail and we
11 go into the week and we decide the load is lighter than we
12 anticipated on Friday or Monday, then we may curtail mid week?

13 A I don't know about that. That's where I'm running
14 into is some trouble with your example.

15 Why would we want to curtail? Is it because we
16 committed one extra baseload unit in the first place more than
17 we should have? If we did that, then the shutdown is on us as
18 the utility, not on the QF. If we committed the right number
19 and the load shifted, then I might like to see if I did have
20 truly negative avoided costs. In other words, I was going to
21 have to do without that resource for some time when I should
22 have had it back, you know, and I had to replace it with some
23 other resource.

24 Now, if one reads the preamble in PURPA, it talks
25 about a situation where, because I had to reduce the

1 generation on a unit too much, which could include taking it
2 off, that I was later unable to have it available to serve the
3 load and I had to get replacement resources. And in any of
4 these cases yet I haven't seen that case in any of FPC's
5 curtailment events where a unit hasn't gotten back in time, it
6 comes off, comes back six hours later, and is well and truly
7 able to serve the load the rest of the day.

8 I think what we are talking about in PURPA is a unit
9 is asked to be shut down and it can't come back. Now that
10 unit on FPC's system that really looks like that to me is
11 Crystal River 3. If you had to take it down -- and this is in
12 answer to your question -- that it would be down for three
13 days minimum if you shut it down.

14 If you shut down Crystal River 3, got it back three
15 days later, I think you might be able to calculate negative
16 avoided costs.

17 Q You're basing your assumptions about when these
18 units could come back on based on unit commit results; is that
19 right?

20 A No. A nuclear unit, generally speaking, if you take
21 it off line, it takes a while to put it back on line.

22 Q Apart from the nuclear unit, as regards the other
23 units, you're making certain assumptions based on these unit
24 commit runs; is that right?

25 A Based upon the data that is being used in the unit

1 commit runs. I haven't personally gone down and talked to the
2 operators of these units. I have taken the data that's been
3 given to me.

4 Q Again I just want to be clear on what you are
5 contending. You're suggesting that Florida Power on a Monday
6 ought to make a commitment of its baseload units for the
7 upcoming week, is that right, based on the data available to
8 it on Monday?

9 A Yes.

10 Q And if it guesses wrong about what load conditions
11 are on Friday and it's committed certain baseload units for
12 Friday and it now appears to continue to accept QF energy will
13 cause negative avoided costs, your opinion is that's tough
14 luck because we made a decision on Monday and we've
15 overcommitted and we have to eat that?

16 A Unless I was going to run into an operational
17 circumstance as described in PURPA --

18 Q Which is --

19 A -- which to me on your system is shutting down
20 Crystal River 3. I can't see that any of the other units on
21 the system could actually live up to the description in the
22 preamble.

23 Q Now, of course, the example in the preamble is not
24 specific to a nuclear unit; is that correct?

25 A No, it is not. And I know lots of fossil units that

1 people consider they've got quite long minimum shutdown times
2 on, quite long, and would fit in with that description in the
3 PURPA preamble.

4 Q So if in the real world there were material risks
5 that a fossil unit would not come back on in five or six
6 hours, that would change your opinion?

7 A Depends on what you mean by "material risks." If I
8 knew that that unit had a significant difficulty getting back
9 up, then I might have negative avoided costs.

10 Q And so that might change your opinion?

11 A Yes, if that particular unit had difficulty getting
12 back up.

13 But not just a chance. Every unit has a chance of
14 not getting back up quickly. All the QFs that get curtailed
15 have a risk of dropping out of service and not getting back
16 up. It has to be sort of beyond that sort of risk that any
17 unit suffers when you shut it down.

18 Just the threat that maybe I can't get this started
19 again, I don't believe that's good enough. Because that same,
20 that same risk applies to all your QFs, too.

21 Q But it would have to be a significant risk?

22 A It would have to be a known problem and a known
23 risk.

24 Q Now, we've talked about this planning exercise and I
25 believe we're in agreement it has to be done on the basis of

1 forecasts for the upcoming week; is that right?

2 A That's all you've got.

3 Q And so it is possible you might curtail on the basis
4 of these forecasts when you really didn't need to?

5 A That's why I would invite all the QFs to continue to
6 generate but tell them at the beginning of the week that I
7 have determined that I have got an operational circumstance
8 this week, if I continue to run you, come Tuesday night, I'm
9 going to have to shut down Crystal River 3 and it will be gone
10 until Friday at least, or the weekend, and I'm not going to do
11 that. And you're free to keep on generating, but here's my
12 warning.

13 Q Now you would concede that if Florida Power made
14 forecasts and reasonably made these forecasts and curtailed on
15 the basis of them but as it turns out in hindsight conditions
16 turned out to be different than expected that that curtailment
17 would not be a violation of PURPA?

18 A You can only do what you can do on the basis of your
19 forecast, sir. A forecast made in all good faith has to be
20 accepted as that.

21 Q Now, on a related point -- I'm sorry.

22 CHAIRMAN CLARK: Do I understand that to be yes, you
23 would say it would not be a violation of PURPA under those
24 circumstances?

25 WITNESS SLATER: No. If the forecast was properly

1 made and consciously made with all the information that was
2 available and it said that I would be shutting down Crystal
3 River 3 on Tuesday night so you had better come off line, and
4 then suddenly the load didn't keep on dropping out and in
5 hindsight you look back and say, "Gee, I could have gotten by
6 with 10 megawatts to spare," you know, I don't think that's a
7 violation of PURPA.

8 CHAIRMAN CLARK: That they could have curtailed the
9 QFs and not been in violation of PURPA?

10 WITNESS SLATER: Yes.

11 CHAIRMAN CLARK: Okay.

12 Q (By Mr. Sasso) And on a related point --

13 A I'm not a lawyer and lawyers might get involved in
14 this. But as far as a practical engineer is concerned, I
15 don't believe it's a violation.

16 Q And it's quite possible that when a utility is
17 predicting its load for the coming week, it may not get that
18 number exactly on the megawatt?

19 A Well, you get the prize if you could.

20 Q And, in fact, even when a utility is attempting to
21 peg its generation at a certain level to match load, it is not
22 going to be able to hit that exactly on the megawatt, either,
23 is it?

24 A What, to regulate its generation to the megawatt?
25 Well, it has automatic generation control; and if

1 the unit is on automatic generation control, it at least
2 wanders around the number that you wanted it at.

3 Q Right. Within a certain range you will get close to
4 matching generation load, but it won't be exact?

5 A No, it's not going to be exact all the time. You're
6 going to be in excess and a deficiency on a cyclic basis as
7 the load goes up and down in your own service territory, up
8 and down in others, and as the frequency has little shifts.

9 Q Okay. Now, you mentioned you haven't talked to
10 Florida Power's operators about dispatching their system; is
11 that right?

12 A No, I haven't.

13 Q And you haven't tried to forecast load on Florida
14 Power's system, correct?

15 A No. I have on other systems but not on Florida
16 Power's system.

17 Q Okay. Now, you argue that Florida Power should
18 attempt to avoid curtailments by pricing interchange sales of
19 excess energy at any price it can get, correct?

20 A If they get a price in excess of zero. There is no
21 chance that they have got negative avoided costs.

22 Q So in excess and equal to zero?

23 A Equal to zero, there is no chance that you will have
24 negative avoided costs.

25 Q So zero means that Florida Power should give away

1 excess energy rather than curtail; is that right?

2 A Yes. As long as -- and if you look in my testimony,
3 I say that giving away of power should become part of the
4 calculation of as-available energy costs.

5 Q In fact, the premise of your opinion about these
6 interchange sales is that whatever Florida Power gets for a
7 block of energy on interchange sales that it is getting for
8 the QFs should be what it pays the QFs for the equivalent
9 block of energy, correct?

10 A It's not getting it from the QFs, it is getting it
11 from all of its fixed resources on its system that it cannot
12 shift. It is not from the QFs, it is from the whole system.
13 But the QFs are being paid on the margin and, therefore, it's
14 part of their calculation.

15 And please, I don't want to get into a lengthy
16 discussion like you had with Dr. Shanker, but let me be firm
17 on that point: It is generation from all of the fixed
18 resources of the system.

19 Q Now you recall in your deposition you were asked the
20 following question at Page 54:

21 "You're saying that if Florida Power sold a portion
22 of QF energy for \$6 that Florida Power ought also to pay \$6
23 for that energy?"

24 "Answer: Yes. In the conglomeration of energy and
25 prices and what not that it puts together to determine the

1 as-available energy costs which is an average of a larger
2 block than what you are talking about curtailing, quite
3 probably, anyway."

4 Do you stand by that answer?

5 A Not every word of it. If there's any connotation
6 there that I believe that the energy that is being sold is
7 from the QFs, then I misspoke myself. I don't believe it's
8 from the QFs, it's from all of the system's fixed resources.

9 Q Okay. At Page 55 of your deposition, were you asked
10 the following question and did you give the following answer:

11 "Question: So in your view, where FPC sells the QF
12 power to an outsider for less than the cost at which FPC
13 purchased that power from the QF," whereupon you interrupted
14 with the following answer:

15 "I'm not saying that it does purchase it for less
16 than that. I'm not agreeing that Florida Power is paying to
17 the QF more than it is getting when it sold the power."

18 Did you give that answer?

19 A Yes, I gave that answer. We were discussing price
20 here rather than precisely whose energy it was, I think.

21 Q And were you asked the following question and did
22 you give the following answer on the same page:

23 "Without knowing the price of what Florida Power is
24 selling at, you say that that never happens?

25 "Answer: If one was to do one's as-available energy

1 costs taking into account the price one was getting for the
2 sales, then Florida Power would never be out-of-pocket. That
3 is my premise."

4 Correct?

5 A It would never be out-of-pocket paying to the QFs
6 the as-available energy price if that as-available energy
7 price included whatever energy was sold, even in Florida
8 Power's way of looking at it. Even if you considered that QF
9 energy to be able to be curtailed or what have you, they're
10 never out-of-pocket.

11 Q Now we also --

12 A Even if that's curtailible QF energy under an
13 operational circumstance, then they're not out-of-pocket
14 taking it and selling it for whatever they can get.

15 Q Now we also discussed in your deposition the
16 application of this Commission's rule on as-available costs;
17 is that right? Do you remember our talking about that at your
18 deposition?

19 A Yes, yes.

20 Q And you acknowledge you have now read that rule, is
21 that right?

22 A Yes, I have read that rule.

23 Q You have read that rule and you acknowledge that --

24 A Well, I've read the rule. And then there's the
25 tariff, which is FPC's filing with the Commissioners saying,

1 "We're going to implement the rule this way."

2 Q We're going to get to that.

3 A Yeah.

4 Q Now you recognize that Rule 25-17.0825(2)(a)
5 requires that Florida Power calculate as-available costs
6 before the sale of interchange energy; is that correct?

7 A Well, I can't recite the numbers, but the benefit of
8 the sales is supposed to go to the ratepayers. Now, in the
9 spirit of that -- the spirit of it -- I would say that if
10 there's a loss, then the Commission would not want the loss to
11 go to the ratepayers, so I can't see any problem in the
12 Commission allowing that what you might term a loss to be
13 picked up by the as-available QFs.

14 Q Now, you acknowledge that the terms of the rule we
15 just discussed, which you reviewed in your deposition, would
16 prevent us from pricing QF energy the way you suggest it
17 should rationally be priced?

18 A I don't think it would prevent you. Because you can
19 come to the Commission and say, "Hey, it's better we do it
20 this way." And I'm sure the Commission would agree. I think
21 it is something that Florida Power could have many months ago
22 come to the Commission and said, "We want to change this
23 particular way this calculation is done because of this, this,
24 and this," and I think you would have gotten your permission.

25 Q So we would need a change in that rule in order to

1 implement a rational pricing scheme --

2 A An addendum. Not actually a change, but an
3 addendum. I don't think the Commission wishes to change the
4 fact that when you make profitable sales you don't pass that
5 profit on to the QFs, you keep it for the ratepayers. I don't
6 think the Commission would want to change that; I think all
7 that there needs to be is a little addendum to cover these
8 fire sale prices at which you could get rid of excess energy
9 on the system.

10 Q Let's assume that our load is at 2,000 megawatts and
11 we're able to meet that load with our own generation at
12 minimum generation levels and the QFs want to supply us under
13 their contracts an addition 200 megawatts. Would you agree
14 that in the event we were to sell that energy on the
15 interchange market it is essentially a pass-through sale of
16 energy from the QFs to third parties?

17 A Is this energy that they are asking, "Will you take
18 and pass on to somebody for us," or what?

19 Q This is energy that they want to supply us under
20 their purchased power agreements.

21 A Extra energy that falls within their contract?

22 Q Yes. Not extra energy, but their firm energy.

23 A Their firm energy?

24 Q Yes.

25 A So let's begin again with the mathematics of it.

1 Q We've got a load of 2,000, and that is equivalent to
2 our own system's minimum generation operating level. And the
3 QFs want to supply another 200 megawatts under their firm
4 purchased power agreements.

5 MR. MCGLOTHLIN: Want to, or are?

6 MR. SASSO: Well, they are currently providing --

7 A They are currently.

8 MR. SASSO: -- 200 megawatts under their firm
9 purchased power agreements.

10 MR. MCGLOTHLIN: The total generation is 2,200?

11 A Yes, do we have a total minimum generation on the
12 system of 2,200?

13 Q (By Mr. Sasso) No.

14 A No?

15 Q The question is as I have stated. We have 200
16 megawatts coming from the QFs, 2,000 generated from our own
17 generating units.

18 A So our lowest generation we can make on the system
19 is 200 from the QFs and 2,000 from your own generating unit.

20 Q And we have load --

21 MR. MCGLOTHLIN: I want to pose a objection to the
22 question because it assumes a differentiation between what's
23 being supplied by the QFs and by Power Corp when the witness
24 has said clearly that all firm resources are system resources.

25 CHAIRMAN CLARK: He's just distinguishing what's

1 coming from the QFs. I don't see any problem with the
2 question.

3 MR. MCGLOTHLIN: I didn't understand his question to
4 be that, Chairman Clark, but --

5 A But the minimum generation on the system is 2,200
6 megawatts, 2,000 comes from Florida Power's units and 200
7 coming from the QFs contracts.

8 MR. MCGLOTHLIN: If that's the question, I withdraw
9 my objection.

10 Q Well, you're restating my question. But if you want
11 to use that terminology, that's fine. As long as we're in
12 agreement that we have 2,000 megawatts coming from Florida
13 Power's own units and 200 megawatts coming from the QFs; we're
14 in agreement on that?

15 A Yes.

16 Q And the load is 2,000?

17 A Yes.

18 Q Now, in the event that those are the circumstances
19 and we're selling off-system 200 megawatts of energy, would
20 you agree that we're passing through energy that we're
21 receiving from QFs to third parties?

22 A No. You're selling 200 megawatts of your surplus
23 minimum generation.

24 Now I don't know whether it is coming from the QFs
25 or whether it is coming from your own units, but it is coming

1 from your minimum generation.

2 Q You are suggesting, are you not, that we should sell
3 off-system 200 megawatts of energy in order to avoid
4 curtailing 200 megawatts of QF energy?

5 A If you're in a situation that would otherwise be
6 operational circumstances, then you would otherwise be able to
7 curtail. Then I would suggest that you should be trying to
8 sell that energy so you didn't have to curtail.

9 Q Let's suppose we meet all the other conditions of
10 operational circumstances and the only mitigation option open
11 is the sale of energy on the interchange market. And if we're
12 able to do that, we don't curtail; and if we can't do that, we
13 do curtail. You can conceive of such a situation?

14 A Yes, I can.

15 Q In that situation, would you agree that we are
16 essentially passing through the QF energy when we make those
17 sales?

18 A Under those circumstances, what you are doing is you
19 are either selling or curtailing, as simple as that. If you
20 sell, you have alleviated your operational circumstances. If
21 you don't, you've got operational circumstances and you are
22 allowed to curtail.

23 Q All right. Now let's look at your testimony
24 regarding the time frame for calculating costs. As I
25 understand it, you contend that Florida Power has distorted

1 the quantification of avoided costs by performing calculations
2 over an unrealistically short duration; is that correct?

3 A Yes.

4 Q And you would calculate avoided costs over a longer
5 duration than the duration that Florida Power uses; is that
6 correct?

7 A That's correct.

8 Q And, in fact, in your supplemental prefiled
9 testimony -- not your rebuttal to Ms. Brousseau's additions,
10 but your prefiled supplemental testimony -- you made negative
11 avoided costs calculations for three curtailment events; is
12 that correct?

13 A Yes.

14 Q And they're set forth in KJS-9; is that right?

15 A That's right.

16 Q And these included days when Florida Power actually
17 curtailed QF energy; is that right?

18 A Yes. Although the curtailments that I was using in
19 those three cases were larger than the curtailments that FPC
20 instituted on those days.

21 Q Exactly. For one of these events you used a
22 curtailment that lasted a whole day; is that right?

23 A No, no, hang on a moment. The megawatt value was
24 also greater than Florida Power had actually instituted that
25 day. Let's use the first one, which is one day. One day

1 calculations.

2 Q One day, you assumed a curtailment that lasted one
3 day; is that right?

4 A Yes. I was looking at the value of that QF energy
5 for that day. For that day. That strip of energy for that
6 day, versus, well, with or without that piece of energy. And
7 the amount, the thickness of that ribbon was equal to a
8 megawatt sum greater than what Florida Power actually
9 curtailed that day because, even though they curtailed, the
10 runs still showed them in excess. So I curtailed for an
11 amount that would get rid of -- that would be bigger than the
12 curtailment such that the excess would go away, there would be
13 no excess generation.

14 Q And this excess generation was something that you
15 gleaned from the unit commit runs; is that right?

16 A Well, yes, that was, that showed generation in
17 excess of load in the base case.

18 Q And those unit commit runs exclude economy sales; is
19 that correct?

20 A I don't know what they did exclude. They were the
21 runs put forward by Florida Power Corporation to justify
22 negative avoided costs and they showed excess generation.

23 Q And you made no assumptions one way or the other
24 whether economy sales were excluded on that?

25 A No. I don't know whether there were any economy

1 sales that day. Let me have a look.

2 There weren't any economy sales appearing in the
3 updated ones on that. Let me pick out the right one, 7th and
4 8th, hang on. No, that's two days. Which was the one-day
5 example? The 30th.

6 Now, actually in the new updated data, Florida Power
7 now says that they were selling on that day. They were
8 selling 142 megawatts and now it is two to five.

9 Q Your calculation again, just to be clear, you
10 assumed a curtailment of 24 hours in that calculation?

11 A Yes.

12 Q And you calculated your figures with QFs and without
13 QFs where the without QF case involved curtailment for 24
14 hours; is that right?

15 A That's right.

16 Q Which was considerably longer than the actual
17 curtailment?

18 A Yes.

19 Q And in the second event you assumed a curtailment of
20 two days; is that right?

21 A That was the length of the database I had for the
22 7th and 8th. And there were curtailments both on the 7th and
23 the 8th.

24 Q What was the actual hour amount of the curtailment
25 on the 7th and the curtailment on the 8th?

1 A They were somewhat different, they were much larger
2 on the 7th than on the 8th. I can't give you the exact number
3 without looking it up, but I don't think that's material here.

4 Q Several hours each day, right?

5 A There would have been up to five hours or something
6 on one day, six hours perhaps. And I think it was an hour
7 less the second day but much smaller, a smaller amount.

8 Q But in your calculations you assumed curtailments --

9 A For 48 hours.

10 Q -- 48 continuous hours of curtailment, is that
11 right?

12 A Yes.

13 Q And you calculated avoided costs on the basis of a
14 comparison of curtailment for 48 hours versus no curtailment;
15 is that right?

16 A That's right.

17 Q And of course in a curtailment of 48 hours the QFs
18 would have been offline or off the system not only in hours
19 where they may have been uneconomic to Florida Power but
20 during hours when load was high enough to make them economic.
21 Is that right?

22 A The 48 hours would include hours when Florida Power
23 wished they didn't have the QFs and hours when they were glad
24 they did. Put it that way.

25 Q Right. And in fact, Florida Power chose to accept

1 deliveries from QFs during those 48 hours in the real world?

2 A Yes. The hours that it thought it was good to take
3 those deliveries.

4 Q And in the third event, you assumed a curtailment of
5 three days; is that right?

6 A Yes. That database was good for 72 hours so I used
7 72 hours on that one.

8 Q And that is the way you propose that we should
9 calculate avoided costs; is that right?

10 A Yes. See, if you don't do it over a sensible period
11 of time, one can get down to the rather ridiculous case where
12 you could look and say, "I've got one hour here when I'm 10
13 megawatts over and I either shut off a unit or curtail those
14 megawatts."

15 And this is -- that's a foregone conclusion when you
16 do that that the cost of the startup will overwhelm the
17 replacement value of a few megawatts of QF for one hour.

18 But it doesn't do what the preamble in PURPA
19 suggests because the problem that you are facing is not that
20 you would deny yourself the use of that unit for an extended
21 period, in which case you would have to start other resources
22 to fill in for it; it doesn't abide by that case.

23 Q But if we do the calculations the way you are
24 proposing, we are, in comparison to the actual curtailments,
25 we are calculating avoided costs of a hypothetical

1 curtailment; is that right?

2 A Yes, you're looking to see whether you can do
3 without that QF generation for that lengthy period of time.
4 If you can, I believe you could establish operational
5 circumstances of negative avoided costs.

6 MR. SASSO: Chairman Clark, may I ask what the
7 Commission's pleasure is in terms of scheduling? I am not
8 completed with my cross examination on Mr. Slater's prefiled
9 testimony. We do have some questions that I have been
10 supplied that would assist us in understanding some of the
11 work he has recently done that I would like to ask before we
12 adjourn this evening so that we will be in a position to cross
13 examine Mr. Slater tomorrow on that.

14 CHAIRMAN CLARK: Go ahead.

15 Q (By Mr. Sasso) Mr. Slater, you have explained the
16 first four cases?

17 A Could I have a minute with my counsel?

18 CHAIRMAN CLARK: Well, he was just wanting, I think,
19 if I understand it, he just wants you to clarify it on your
20 Exhibit 13?

21 MR. SASSO: Yes, KJS-10, which is Exhibit 13.

22 WITNESS SLATER: It was just simply a question
23 whether my counsel would like to offer something which might
24 make this unnecessary, that's all.

25 MR. SASSO: If Mr. Slater has further --

1 CHAIRMAN CLARK: Mr. McGlothlin, will you talk to
2 your witness for just a minute? (Pause)

3 WITNESS SLATER: Madam Chairman, what I asked
4 counsel is, is it all right if I offered Florida Power
5 Corporation a copy of each one of the change case runs I made,
6 a copy of the printout from those runs so they could take them
7 home and look at them overnight. Would that sort of cut out
8 the questions and allow them to get on with what they really
9 want to find out?

10 MR. SASSO: That was certainly one of my questions,
11 whether we could get a disk.

12 WITNESS SLATER: Well, I don't have a disk with them
13 on, but I have the paper output.

14 MR. SASSO: We would certainly appreciate any
15 information that would help us understand his testimony.

16 CHAIRMAN CLARK: Okay. Considering that he is
17 giving you that, do you have any other questions?

18 Q (By Mr. Sasso) Mr. Slater, you have provided us
19 with an explanation of your calculations and worked with the
20 data on the first four events in KJS-10 and we would
21 appreciate your walking us through the assumptions you made
22 and the calculations you made and any changes you made for the
23 January 14, 1995, event, and January 30, 1995, event in the
24 same manner that you covered the earlier events.

25 A I'm sorry, I would have continued but I thought I

1 was taking too much time.

2 On the 14th, that run was actually for three days.
3 The run began on the 13th, went through the 14th and the 15th.

4 Now, in the run, the Unit 2, Crystal River 2,
5 actually shut down because of the program economics on the
6 evening of the 13th, around about 9:00 or 10:00 or something,
7 it shut down. Cycled off the previous evening. CR-1 was
8 taken off at 0200; and then Bartow 1 was started at 0800 to
9 get enough capacity on line. And that scenario generated a
10 significant negative avoided cost for that day of the 14th,
11 which is the way that Florida Power has been measuring these
12 things.

13 What I did instead was, instead of allowing the
14 program to cycle off Unit 2 the evening before, I said, "All
15 right, I want it to cycle off Unit 4." So I made it cycle off
16 Unit 4 instead of Unit 2 and that reduced the costs for all
17 three days of the run, actually. It was the better unit to
18 shut off as far as the costs on the whole system was
19 concerned.

20 And it ended up then that you, because I took off
21 Crystal River 4 the previous evening, when the program needed
22 to cycle off a unit, it itself wanted to cycle off a unit, I
23 just told it which one it ought to cycle off. It cycled off
24 two and then found come the following morning it had to take
25 another unit off. So I took off the one the night before or

1 allowed it to only take off Crystal River 4, I didn't allow it
2 to take off the other two.

3 That was the cheaper unit to take off as far as the
4 rest of the system was concerned, and the 14th ended up having
5 positive avoided costs. That's what happened there was me
6 telling the program what to do.

7 On the 30th, the base case setup had a Bartow unit,
8 Bartow 3, being cycled off for five hours. That was in the
9 base case. It remained in the change case and, as well,
10 Crystal River 1 cycled off to make way for the returned
11 curtailed QF.

12 Now, I determined that it wasn't necessary --

13 COMMISSIONER KIESLING: Could I stop you for a
14 minute? I'm confused. On the 30th, under your column, the
15 change case without curtailment, it doesn't say anything about
16 Bartow 3.

17 WITNESS SLATER: Bartow 3 is mentioned in the base
18 case.

19 COMMISSIONER KIESLING: Right.

20 WITNESS SLATER: Bartow 3 was cycled off in the base
21 case, and the only change that occurred in the change case was
22 that Crystal River 1 was additionally shut down. So Bartow 3
23 was still being cycled off because it was cycled off in the
24 base case.

25 COMMISSIONER KIESLING: Okay.

1 WITNESS SLATER: That was manually cycled off; it
2 wasn't a program choice, it was a data choice. Sorry I didn't
3 explain that; that's what I missed out explaining, that Bartow
4 3 by the data was cycled off for five hours.

5 So it was still in the change case, it wasn't
6 released in the change case. So what I did was I kept it on,
7 I released it, I kept it on in my change case and all I needed
8 was the shutdown of Crystal River 1 in the change case.

9 So now the base case had Bartow 3 being cycled off
10 and Crystal River 1 staying on, whereas the change case now
11 had Bartow 3 remaining on and Crystal River 1 being cycled
12 off. Just the reverse for those two units between the
13 original base case and my new change case.

14 CHAIRMAN CLARK: Is that the information you need,
15 Mr. Sasso?

16 MR. SASSO: Thank you, Chairman Clark.

17 CHAIRMAN CLARK: Okay. We're going to adjourn the
18 hearing at this time and we will reconvene at 8:30 tomorrow
19 morning and begin with the cross examination of Mr. Slater. I
20 will expect at that time you will complete all your cross
21 examination.

22 MR. SASSO: Thank you.

23 CHAIRMAN CLARK: Thank you.

24 (Thereupon, the hearing adjourned at 6:00 p.m. to
25 reconvene at 8:30 a.m., Wednesday, May 10, 1995, at the same

1 address.)

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(Transcript continues in sequence in Volume 6.)

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