

BEFORE THE  
FLORIDA PUBLIC SERVICE COMMISSION

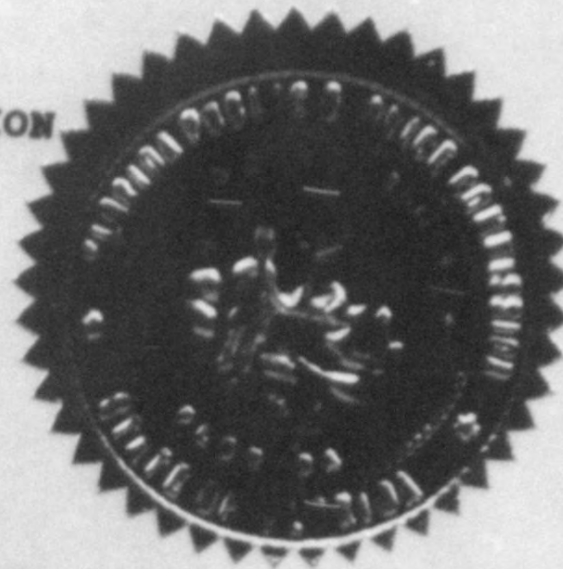
-----  
In the Matter of :  
Prudence review to :  
determine regulatory :  
treatment of Tampa Electric :  
Company's Polk Unit. :  
-----

DOCKET NO. 960409-EI

FIRST DAY - AFTERNOON SESSION

VOLUME 2

Pages 179 through 318



PROCEEDINGS:

HEARING

BEFORE:

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

DATE:

Wednesday, July 17, 1996

TIME:

Commenced at 9:30 a.m.

PLACE:

Betty Easley Conference Center  
Room 148  
4075 Esplanade Way  
Tallahassee, Florida

REPORTED BY:

JOY KELLY, RPR, CSR  
Chief, Bureau of Reporting  
ROWENA NASH HACKNEY  
Official Commission Reporter  
(904) 413-6736

APPEARANCES:

(As heretofore noted.)

## WITNESSES - VOLUME 2

1		PAGE NO.
2	NAME	
3	THOMAS L. HERNANDEZ	185
4	Continued Cross Examination By Mr. Elias	225
	Redirect Examination By Mr. Beasley	
5	HUGH W. SMITH	246
	Direct Examination By Mr. Long	249
6	Prefiled Direct Testimony Inserted	274
	Cross Examination By Mr. McWhirter	282
7	Cross Examination By Mr. Howe	288
	Cross Examination By Ms. Erstling	

## EXHIBITS - VOLUME 2

9		ID.	ADMTD.
10	NUMBER		
11	5	(Hernandez) Witnesses Niekum and Major, Florida Power Corp Polk County Generation Project	203
12			
13	6	(Hernandez) Staff composite Exhibit 4, Witness Thomas Hernandez	211
14			
15	7	(Hernandez) 1994 Study System Capital Revenue Requirement Comparison	229
16			
17	8	(Hernandez) Annual Cost- Effectiveness for '92 through '94	233
18			
19	9	(Hernandez) Annual Cost- effectiveness for 1992 through 1996	235
20			
21	10	(Hernandez) Redirect exhibit on Cost-effectiveness study	236
22			
23	11	(Smith) HWS-1	271
24			
25	12	(Smith) Staff Composite Exhibit for Hugh W. Smith	290

## P R O C E E D I N G S

(Hearing reconvened at 1:40 p.m.)

(Transcript follows in sequence from  
Volume 1.)

**COMMISSIONER DEASON:** Call the hearing back to order. Mr. Long, I want to be sure I understand the nature of your objection to Staff's exhibit, what we've identified so far as Exhibit No. 4. And you had indicated that since this was being brought up at this time, you would raise your objections to it. And I want to be clear as to whether -- will you be raising objections to the deposition of Mr. Waters and the attached documents? Is it the entire deposition and documents of Mr. Waters?

**MR. LONG:** Yes, Chairman, that is correct.

**CHAIRMAN CLARK:** And the basis for your objection is that it is not relevant to this proceeding for what reason?

**MR. LONG:** The basis for my objection is that to the extent that this proceeding is intended to look at the prudence of Tampa Electric's investment in its Polk plant, questions of why other utilities may have decided to postpone the construction of IGCC plants on their system really is of no probative value given the significant difference in circumstances.

1 That's one point.

2           The second point is that the cost of a unit  
3 on another utility's system tells you nothing about  
4 the cost effectiveness of that unit on Tampa  
5 Electric's system. And that is the essence of both of  
6 the depositions that are at issue here.

7           And in the course of those depositions,  
8 witnesses from both companies were asked the questions  
9 that I'm posing here in terms of whether operations on  
10 their system would be relevant to operations on Tampa  
11 Electric's system. In both cases they said no. So  
12 from the witnesses' own mouths, I think you have  
13 support for the assertions that I'm making.

14           **CHAIRMAN CLARK:** Okay. And Mr. Elias just  
15 to refresh my memory, your response was.

16           **MR. ELIAS:** Relevant evidence is evidence  
17 which tends to prove a material fact. At issue in  
18 this proceeding are the reasonableness of Tampa  
19 Electric's assumptions concerning the continued  
20 justification for construction of the gasifier. Part  
21 of the basis and the justification for continuing to  
22 construct the gasifier was the cost of the combined  
23 cycle alternative. And we are not talking about  
24 system dispatch; we are not talking about fuel prices.  
25 We are talking simply about the construction cost of a

1 combined cycle unit.

2           The evidence that we have proffered with  
3 respect to Florida Power and Light and would proffer  
4 with respect to Florida Power Corporation would show  
5 that the cost on a per kW installed basis is  
6 approximately half of what Tampa Electric assumed it  
7 would be --

8           **CHAIRMAN CLARK:** Well, Mr. Elias, stick to  
9 why it's relevant.

10           **MR. ELIAS:** We think that it tends to  
11 prove -- or it provides evidence relevant to the  
12 reasonableness to Tampa Electric's assumption with  
13 respect to the costs to construct a combined cycle  
14 unit.

15           **MR. HOWE:** Excuse me, Chairman Clark. Are  
16 we going to get to the issue here of whether or not --

17           **COMMISSIONER KIESLING:** Push your button or  
18 something. I can't hear you.

19           **MR. HOWE:** Are we going to get to the issue  
20 here of whether the depositions themselves come in;  
21 because if we are, I would like to comment.

22           **CHAIRMAN CLARK:** Let me just ask a further  
23 question of Mr. Elias. Now, you want to ask  
24 Mr. Hernandez some questions on Staff Exhibit 4 which,  
25 I understand, is part of a deposition exhibit of

1 Mr. Waters; is that correct?

2 MR. ELIAS: That's correct.

3 CHAIRMAN CLARK: And what is the nature of  
4 the questions you wish to ask?

5 MR. ELIAS: The questions go to the  
6 differences in the cost and why Tampa Electric Company  
7 could not bring a combined cycle unit on line at a  
8 comparable cost.

9 COMMISSIONER DEASON: At this point, I'm  
10 inclined to find that they are relevant because I  
11 think it does provide other evidence that goes to the  
12 weight or credibility of evidence on the  
13 reasonableness of assumptions with respect to the  
14 costs that Tampa Electric Company was using for their  
15 combined cycle. I understand that you have concerns  
16 about its probative value. I, too, have concerns  
17 about its probative value, but I do believe it's  
18 relevant, and the probative value will depend on how  
19 much it can be tied to the same considerations that  
20 Tampa Electric would have to look at. And to that  
21 extent, I will allow it in.

22  
23  
24  
25

**THOMAS L. HERNANDEZ**

1  
2 resumed the stand as a witness on behalf of Tampa  
3 Electric Company and, having been previously sworn,  
4 testified as follows:

**CONTINUED CROSS EXAMINATION**

5  
6 **BY MR. ELIAS:**

7           **Q**     Mr. Hernandez, when we broke for lunch you  
8 were going to find out what the cumulative present  
9 worth revenue requirements impact was on the  
10 cost-effectiveness of the IGCC alternative in the 1994  
11 cost-effectiveness evaluation. Have you got that  
12 number?

13           **A**     Yes. And I'm going to refer to the  
14 Company's response to Interrogatory No. 69. And the  
15 differential cumulative present worth system revenue  
16 requirements for the 1994 analysis for going from a  
17 10- and 20-year tax life to a 20-year tax life would  
18 result in additional cost of approximately \$36.8  
19 million.

20           **Q**     So that a longer tax life has a higher  
21 cumulative present worth revenue requirement?

22           **A**     That's correct.

23           **Q**     And what was the difference in 1995?

24           **A**     Again, in the same response to Interrogatory  
25 No. 69 for the same analysis, looking at a 10- and

1 20-year tax life for the gasification equipment and to  
2 make a change to a 20-year tax life would result in an  
3 additional cost of approximately \$39.8 million.

4 Q And what assumptions with respect to the tax  
5 life for the gasifier were assumed in the 1996 study?

6 A We assumed that the entire IGCC unit would  
7 have a seven-year tax life.

8 Q Are you aware of any opinion that may have  
9 been expressed by the Internal Revenue Service to  
10 representatives of Tampa Electric Company concerning  
11 the appropriate tax life of this unit?

12 A I relied on the assumption to use a  
13 seven-year tax life from our tax department. And I  
14 understand our interpretation of the law, and IRS'  
15 interest in this regard is to have a single tax life  
16 verses a split tax life and that a seven-year tax life  
17 would be appropriate.

18 Q Are you aware of any comments made by  
19 representatives of the Internal Revenue Service to  
20 Tampa Electric Company concerning what they believe  
21 the appropriate tax life for this unit was?

22 A Not specifically, no.

23 Q Subject to check, would you accept that  
24 Mr. Mulligan represented in his deposition that the  
25 IRS believes this unit has a 20-year tax life?



1                   **MR. BEASLEY:** Madam Chairman, I would like  
2 to object to this question as being, so far,  
3 unsupported by the evidence in the case, and the  
4 witness has indicated he doesn't know the answer, I  
5 believe.

6                   **MR. ELIAS:** We will proffer the deposition  
7 of Mr. Mulligan where he agreed -- or he made that  
8 statement?

9                   **CHAIRMAN CLARK:** Mr. Elias, let me ask you a  
10 question. In the interest of speeding this along, is  
11 that a question that's more appropriately asked of  
12 Ms. Townes?

13                   **MR. ELIAS:** I don't think so because it goes  
14 to the reasonableness of the assumptions that went  
15 into the cost-effectiveness analyses in the various  
16 years.

17                   **CHAIRMAN CLARK:** Okay. Well, Mr. Hernandez,  
18 please try to answer the questions. If you don't  
19 know, you don't know.

20                   **WITNESS HERNANDEZ:** Okay.

21                   **CHAIRMAN CLARK:** And your answer --

22 Mr. Elias, will you ask the question again?

23                   **Q**           **(By Mr. Elias)** The question was: Are you  
24 aware of any opinions expressed by any representatives  
25 of the Internal Revenue Service to representatives of

1 Tampa Electric concerning the appropriate tax life for  
2 this facility?

3 A I don't know what that total opinion would  
4 be, no.

5 Q Does it concern you that the  
6 cost-effectiveness of this unit is adversely impacted  
7 to the tune of \$90 million in this current year based  
8 on an issue that's unsettled, i.e. the appropriate tax  
9 life?

10 A No.

11 Q Why not?

12 A Based upon the interpretation of our tax  
13 department, we feel that that is a very reasonable  
14 assumption to make.

15 Q Now, turning to the 1995 study on Page 83?

16 A Okay.

17 Q That study shows tax credits attributable in  
18 that year in the amount of \$87,335,000; is that  
19 correct?

20 A That's correct.

21 Q And are those tax credits identical -- or  
22 based on the same provision of the tax code as the  
23 1994 study?

24 A The basis for the calculation of the credit  
25 is the same, but there are differences in terms of the

1 amount of time that the credit was applied. The  
2 credit was applied for one additional year in the 1995  
3 study based on the information we obtained from our  
4 tax department. And then there's a difference on the  
5 cumulative present worth of the tax credit due to the  
6 differences in the discount rate between the two study  
7 periods.

8 Q Now, as distinguished from the 1994 study,  
9 the fuel mix for the gasifier in 1995 is different; is  
10 that correct?

11 A Would you repeat that question?

12 Q Comparing the 1995 study to the 1994 study,  
13 the fuel mix for the gasifier is different?

14 A That is correct. For the period beyond the  
15 10 years in the 1994 study, where we had the Section  
16 29 tax credit application, we assumed, for purposes of  
17 this analysis, a straight coal as a primary feedstock  
18 for the gasifier. In the 1995 study we correctly used  
19 a petroleum coke/coal blend. If we had gone back and  
20 added that petroleum coke/coal blend for the balance  
21 of the operating life after the Section 29 tax credits  
22 in the 1994 study, that would have resulted in  
23 additional benefits that we should have realized.

24 Q And similarly, with respect to 1995, if the  
25 tax credits for the first twelve years of operation

1 are not received, the cumulative present worth revenue  
2 requirement savings or difference between the \$148  
3 million figure that's shown here and what you would  
4 achieve burning pet coke after the demonstration is  
5 less; is that correct?

6 A It's less, but there's still significant  
7 savings associated with using a petroleum coke/coal  
8 blend.

9 Q I'll go onto something else.  
10 Would you turn to Page 7, Line 23, of your  
11 prefiled direct testimony?

12 A Okay.

13 Q Now, isn't it true that in the 1996  
14 evaluation, but for the sunk costs associated with the  
15 gasifier which are charged to the combined cycle unit,  
16 the combined cycle unit would show a lower cumulative  
17 present worth revenue requirements?

18 A If we had not included the sunk costs?

19 Q Yes.

20 A Yes. And the IGCC alternative reduced by  
21 that same amount would result in lower system revenue  
22 requirements.

23 Q Well, let me ask you this: Doesn't that  
24 indicate if TECO had decided to construct a combined  
25 cycle unit in the 1992-93 time frame, its ratepayers

1 would be better off today?

2 A No, it does not.

3 Q Why not?

4 A The analyses done at the time, the 1992-1993  
5 time frame, based on the best available information,  
6 indicated that the IGCC unit was, indeed, the most  
7 cost-effective alternative. The most current  
8 assumptions support that; it still continued to be  
9 cost effective.

10 Q And if TECO had opted in the 1992-93 time  
11 frame to construct a combined cycle, rather than the  
12 IGCC, its ratepayers would be better off. Is that  
13 true?

14 A You are saying if we had constructed a  
15 combined cycle instead -- no, sir. We would have not  
16 realized the fuel benefits associated with the IGCC  
17 unit.

18 Q And aren't those reflected in the 1996  
19 cost-effectiveness evaluation?

20 A The fuel benefits?

21 Q Yes.

22 A Yes, it is.

23 Q And isn't there \$170 million worth of sunk  
24 costs in the 1996 evaluation -- I'm sorry, 244  
25 million?

1           A     It's approximately 244 million.

2           Q     And doesn't the plan have about \$200 million  
3 worth of cumulative present worth revenue requirement  
4 savings?

5           A     It's approximately 201 million in savings,  
6 that is correct.

7           Q     So then if TECO's ratepayers did not have to  
8 pay the sunk costs or assume responsibility for the  
9 sunk cost, they would be better off under the combined  
10 cycle alternative; would they not?

11          A     The \$201 million savings includes the sunk  
12 cost, since under either scenario, we would seek to  
13 recover any costs incurred with the project if we had  
14 made the decision to change to a combined cycle  
15 alternative.

16          Q     Now, with respect to those sunk costs, how  
17 are they modeled in each of the studies, as far as  
18 when they were recovered?

19          A     The sunk costs that are identified with --  
20 and I assume you are referring to the gasifier related  
21 sunk costs?

22          Q     Yes, sir.

23          A     The sunk costs that were identified on the  
24 combined cycle alternative was the same value that was  
25 included in the IGCC alternative. So in both sides of

1 comparing the alternatives, any sunk costs incurred,  
2 gasifier related sunk costs incurred to the date that  
3 we did the study, had to be included in any  
4 alternatives we were looking at, so that we were,  
5 indeed, looking at an incremental cost analysis to  
6 complete the project. So, therefore, they were  
7 included in the system revenue requirement calculation  
8 for both alternatives.

9 Q What time period were those sunk costs  
10 recovered over in the combined cycle alternative?

11 A For both alternatives they were included  
12 over the expected operating life for purposes of the  
13 study, which was 30 years.

14 Q So you didn't assume any accelerated  
15 recovery of the sunk costs associated with the  
16 combined cycle unit?

17 A No, we did not.

18 Q Would accelerating the recovery of those  
19 costs tend to reduce the revenue requirement  
20 associated with the combined cycle alternative?

21 A Depending on what exactly is recovered, it  
22 would tend to shorten -- if you go to a shortened  
23 life, it would tend to reduce the overall revenue  
24 requirements, but not to the point where it would  
25 render the IGCC unit not to be the most cost-effective

1 alternative.

2 Q Would you turn to Page 7 of your prefiled  
3 direct testimony, beginning on Line 7. You make a  
4 statement there, "Under my direction and supervision,  
5 Tampa Electric annually reviews key planning  
6 assumptions and forecasts as standard business  
7 practice."

8 In your deposition you indicated that most  
9 of the inputs that went into these cost-effectiveness  
10 evaluations were supplied to you by other departments;  
11 is that correct?

12 A That's correct.

13 Q And you didn't do anything as far as  
14 reviewing the reasonableness of those assumptions, you  
15 just used them in the models; is that correct?

16 A No, that's very incorrect. As part of my  
17 responsibility as director of resource planning, I  
18 need to clarify, too, my department is responsible for  
19 producing the demand in energy forecast and the  
20 Company's inflation and escalation rates. That's  
21 something that directly comes from my department. But  
22 my department is also responsible to not only receive  
23 the input, but to review it for reasonableness. And  
24 we do that by comparing it to prior forecasts,  
25 comparing it to other forecasts and just seeing if



1 it's in a range of reasonableness. We do not prepare  
2 directly those assumptions, but we do review them. We  
3 don't just take them blindly.

4 Q What did you do to determine the  
5 reasonableness of the assumption in 1996 that the  
6 gasifier would have a seven-year tax life?

7 A I am not an expert on tax issues, so I  
8 relied on our tax department.

9 Q So that was just an input that you accepted?

10 A Based on the information that was provided,  
11 it seemed reasonable.

12 Q And with respect to the fuel forecast, was  
13 that in any way modified from the way you saw it, from  
14 the way it was received by you?

15 A I'm not sure I know what you mean.

16 Q Well, you said you reviewed the input  
17 assumptions for reasonableness. And my question is:  
18 With respect to the fuel price forecasts that were  
19 used for each of the five years, did you make any  
20 modifications to what was received from the fuels  
21 department?

22 A We do not take assumptions or input data and  
23 arbitrarily modify them in any way. If we have a  
24 question about a parameter or an escalation rate or  
25 something that supports that forecast, in this case

1 the fuel forecast, I would go back to Mr. Smith, who  
2 is director of fuels and environmental, and ask  
3 questions about the basis for the forecast. But I  
4 would not arbitrarily change any forecasts.

5 Q Well, my question was: Did you make any  
6 changes to the forecasts as they were received in  
7 modeling the cost-effectiveness of the unit in any of  
8 the years?

9 A I think I just said I did not change any  
10 forecasts. Any change to the forecasts would be made  
11 by the people that originate the forecasts.

12 Q Now, you mentioned inflation and escalation  
13 rates. Over the life of this project, what has  
14 happened to Tampa Electric Company's expectation of  
15 interest rates and inflation rates?

16 A In general, over the past five years  
17 inflation rates or escalation rates have been slightly  
18 lower than we had forecasted, but we expect that to  
19 return to the 3½ or 3.2% that we forecasted a few  
20 years ago.

21 Q Now, wouldn't lower inflation and escalation  
22 rates tend to reduce the price of a project if they  
23 occurred between the time the project was envisioned  
24 and placed in-service?

25 A I think that depends upon the contractual

1 commitments that are in place at that point in time.  
2 Again, it goes back to what did you know when you made  
3 those assumptions or when you entered that contract.

4 Q In general, assuming that all contracts are  
5 not entered into on a firm basis on the first day  
6 after the need determination is final, wouldn't lower  
7 inflation and escalation rates tend to indicate that  
8 the project would be priced less than what was  
9 envisioned in the need determination?

10 A I don't know specifically how that would  
11 have affected our costs for this project.

12 Q Well, you stated that costs for the project  
13 were 4.3% more than what was envisioned in the need  
14 determination; is that correct?

15 A Excluding the cost for land acquisition and  
16 site development, that's correct.

17 Q Now, my question to you is wouldn't the  
18 lower inflation and escalation rates that we have seen  
19 over the last five years tend to drive that price the  
20 other way?

21 A Not necessarily. It goes back to what was  
22 the basis for our initial cost estimate at the time of  
23 the need hearing.

24 Q Would you turn to Page 9, Line 9, of your  
25 prefiled direct testimony and actually beginning on

1 Line 8.

2 A Okay.

3 Q You state that the actual field construction  
4 start date was May, 1994, but was originally  
5 anticipated to be January, 1994. When was final  
6 environmental approval for the Polk site received by  
7 Tampa Electric Company?

8 A I'm not sure on the exact date.

9 Q Would you accept subject to check it was  
10 sometime in August, 1994?

11 A Subject to check, okay.

12 Q And did you in November of 1994 attend a  
13 ground-breaking ceremony at the Polk site?

14 A I'm not sure if that was the date, but I  
15 attended a ground-breaking ceremony.

16 Q Would you accept, subject to check, that it  
17 was November 2, 1994?

18 A Okay.

19 Q Is it fair to say then the construction on  
20 the gasifier portion of this plant did not start until  
21 after November of '94?

22 A I can't say.

23 Q You just don't know?

24 A I don't know.

25 Q Well, do you know what kind of work was done

1 beginning in May of 1994?

2 A Not specifically, no. Mr. Black would have  
3 that answer.

4 Q Now, beginning on Line 22 of Page 10 of your  
5 prefiled direct testimony, you say that each Ten Year  
6 Site Plan submitted by Tampa Electric from 1992  
7 through 1996 provided updates to the Commission about  
8 the cost of Polk Unit One, as well as changes to the  
9 timing and type of future generating plant additions.

10 No cost-effectiveness evaluations were  
11 submitted in connection with the Ten Year Site Plan,  
12 were they?

13 A No, they were not.

14 Q Would you turn to Page 13, Line 1 of your  
15 prefiled direct testimony. And you state that in  
16 effect the Commission reviewed and approved the  
17 continued need for Polk Unit One in the course of  
18 identifying the next avoidable unit on Tampa  
19 Electric's system.

20 Was that specifically an identified issue in  
21 that proceeding?

22 A Yes, sir, it was.

23 Q That was what the next avoided unit would  
24 be; is that correct? Am I paraphrasing the issue  
25 appropriately?

1           A     You are referring to part of an answer that  
2 begins on Page 12, Line 20 of my direct testimony that  
3 refers to the conservation goals proceeding. And a  
4 key element in determining the appropriate level of  
5 DSM goals in that proceeding was to first identify  
6 what was the appropriate avoided unit. It was that  
7 avoided unit that would become the basis for the  
8 avoided cost that the new and existing DSM programs  
9 would be measured against. So while it was not a  
10 specific element -- I'm sorry, it was a specific  
11 element in order to achieve the overall goal of  
12 identifying what the appropriate DSM goals were and it  
13 was, in fact, considered by the Commission and  
14 determined by the Commission that the Polk Unit One  
15 was not the next avoided unit on our system, that the  
16 next avoidable unit on our system was a 1999  
17 combustion turbine.

18           Q     Now, beginning on Line 18 of Page 16 of your  
19 prefiled testimony, you address the inclusion of the  
20 land, land improvements and environmental mitigation  
21 as compared to the cost-effectiveness of the  
22 generation alternatives. And you state that since all  
23 seven technologies were technically suitable for the  
24 selected Polk County site and the selection of any one  
25 technology would not affect the location or amount of

1 land purchased or the associated site development land  
2 improvement costs, including environmental mitigation,  
3 these combined costs were not included, or were  
4 considered the same for all resource plan  
5 alternatives.

6 How much land do you need to construct a  
7 combustion turbine?

8 A I'm not sure that is a fair question. In  
9 order to effectively develop a site that's going to  
10 support 1100 megawatts, you need to consider what you  
11 are going to acquire in order to support the power  
12 blocks for that build-out capacity, as well as the  
13 lands buffer zones and any environmental mitigation,  
14 so I can't answer your question directly. And what I  
15 said in my testimony is that for any of the  
16 technologies that were technically viable for our  
17 system, we would, in fact, have to acquire the same  
18 amount of land and that we would incur the same site  
19 development cost.

20 Q And is that true for a combustion turbine  
21 expansion plan?

22 A Yes, sir, it is.

23 Q And why is that?

24 A Even in a combustion turbine scenario, and  
25 again we are in a hypothetical that if a combustion

1 turbine or a combined cycle were constructed instead  
2 of the IGCC, we have already determined that the Polk  
3 power station site was, in fact, the most appropriate  
4 site for us to expand our system. And we have got to  
5 look at the 10-year and 20-year planning horizon and  
6 looking at the amount of combustion turbines that  
7 would be required at that site. Or if we had built a  
8 combustion turbine, we would, in fact, have to add  
9 combined cycle capacity. You would still need the  
10 same site development work in order to support that  
11 build out.

12 **COMMISSIONER GARCIA:** However no sight of  
13 yours currently has that size, does it?

14 **WITNESS HERNANDEZ:** Our other existing power  
15 plant sites?

16 **COMMISSIONER GARCIA:** Yes.

17 **WITNESS HERNANDEZ:** I'm not sure.

18 **Q** (By Mr. Elias) Wasn't one the  
19 requirements that was presented to the siting board  
20 that the site selected be coal capable?

21 **A** Was it a requirement by the siting board?

22 **Q** Wasn't that one of the requirements  
23 presented to the siting board?

24 **MR. BEASLEY:** Commissioners, I believe  
25 Mr. Black could probably answer these types of



1 questions more effectively than Mr. Hernandez, if that  
2 would be of any assistance in helping counsel direct  
3 his questions?

4 MR. ELIAS: I will do that.

5 Q (By Mr. Elias) If that was one of the  
6 requirements that was directed to the siting  
7 committee, wouldn't that tend to bias the choice of  
8 generating alternative?

9 A I don't know.

10 MR. ELIAS: Madam Chairman, I would ask that  
11 the exhibit that Mr. Half just passed out be marked as  
12 the next exhibit?

13 CHAIRMAN CLARK: It will be marked as  
14 Exhibit 5. And the cover sheet identifies witnesses  
15 Niekum and Major, and attached to it is a document  
16 entitled: Florida Power Corporation Polk County  
17 Generation Project, Summary of Estimated Costs-Power  
18 Block 1.

19 (Exhibit No. 5 marked for identification.)

20 Q (By Mr. Elias) Mr. Hernandez, you were  
21 present at the deposition of Mr. Niekum and Mr. Major;  
22 is that correct?

23 A Yes.

24 Q And you've seen this exhibit before; have  
25 you not?

1           **A**    Yes, I have.

2           **Q**    Would you tell the Commission what your  
3 understanding of FPC's Polk project are as far as the  
4 parameters, size unit, fuel choices, costs?

5           **MR. BEASLEY:** Commissioner, could we have  
6 one moment to just compare this with what we came away  
7 from the deposition with to verify that we are looking  
8 at the right page?

9           **CHAIRMAN CLARK:** Yes.

10          **MR. BEASLEY:** Thank you. (Pause)

11          **MR. LONG:** Chairman Clark?

12          **CHAIRMAN CLARK:** Mr. Long.

13          **MR. LONG:** If I may, the point that I was  
14 concerned about is that in the deposition, the witness  
15 stated that the total site development costs for the  
16 FPC Polk project was approximately \$113 million. And  
17 that differs quite significantly from the numbers in  
18 the exhibit that you have before you. I think the  
19 differences can be accounted for through escalation  
20 and AFUDC. But I think these numbers give you an  
21 unrealistically low sense of what the actual site  
22 development costs were. And this is part of the  
23 concern that I had about trying to make an apples and  
24 oranges comparison.

25          **CHAIRMAN CLARK:** Well, I would encourage you

1 to probe those discrepancies on redirect.

2 MR. ELIAS: And I would note the numbers  
3 that are on the Exhibit 5 --

4 CHAIRMAN CLARK: Let me just stop you right  
5 there. It is up to the witnesses to provide  
6 testimony, not the attorneys. And I should have said  
7 something to Mr. Long.

8 Q (By Mr. Elias) Okay. Mr. Hernandez, the  
9 question on the floor was, I believe, describe your  
10 understanding of the Florida Power Corporation Polk  
11 project?

12 A Do you want me to tell you what I'm reading  
13 here?

14 Q No. I want you to tell me what you  
15 understand it to be from your general knowledge and  
16 from your attending the deposition. And if you want  
17 specific questions, I can do it that way. I mean,  
18 where is FPC's Polk project located relative to Tampa  
19 Electric Company?

20 A I'm not sure, but it's approximately seven  
21 to ten miles in Polk County.

22 Q How big is the site, Florida Power  
23 Corporation's Polk site?

24 A It's approximately 8,000 acres.

25 Q Do you recall from attending the deposition

1 what the ultimate build out of that site was in  
2 megawatts?

3 A 2,000 to 3,000 megawatts.

4 Q Comparing the cost on a per kW basis -- or  
5 strike that.

6 To your knowledge, does FPC have a  
7 significant investment in site development at that  
8 site?

9 A I don't know.

10 Q Do you know if FPC projects to have a  
11 significant site development investment at that site?  
12 And I'll say on the order of \$100 million or more.

13 A I think it's something more on the order of  
14 \$112 to \$115 million for total build-out.

15 Q 112?

16 A 112-115 million.

17 Q 115 or 150?

18 A 115.

19 Q Okay. Even with that disadvantage, at every  
20 year studied or reflected on this exhibit, FPC has

21 shown costs, installed costs on a per kW basis, of  
22 approximately, anywheres from \$200 to \$1,200

23 difference per kW from those assumed by Tampa Electric  
24 Company in each of its cost-effectiveness evaluations.

25 Why is that?

1           A     I'm not aware that this supported any  
2 cost-effectiveness evaluations made by Florida Power  
3 Corp.

4           Q     Installed cost?

5           A     Okay. Are you referring to this dollar per  
6 kW number, down here at the bottom?

7           Q     On Line 21.

8           A     And your question to me was again?

9           Q     Why are Tampa Electric's numbers between  
10 \$200 and \$1,400 per kW higher for the same type  
11 technology?

12          A     My estimate based on -- putting things on a  
13 comparable basis is that we are within \$100 to \$150  
14 dollar per kW.

15          Q     And would you explain that?

16          A     Sure. When you look at what originally  
17 Florida Power Corp had been putting in their Ten Year  
18 Site Plans and what they used in their conservation  
19 goal proceeding, they had originally a single combined  
20 cycle unit that was going to be placed in-service in  
21 November of 1998, I believe. This was at a new site,  
22 at the Polk site. And the first unit at any site is  
23 going to have a greater proportion -- or if you  
24 allocate all of those costs, with the land acquisition  
25 and the site development on the first unit, on a

1 dollar-per-kW basis it's going to be much higher, and  
2 that is indeed what they were showing by placing one  
3 unit.

4 But effectively what they have done now is  
5 doubled the amount of capacity, and taking those  
6 costs, like the land acquisition and the site  
7 development costs, you basically cut that  
8 dollar-per-kW component in half. We do not enjoy that  
9 benefit when you're comparing a single 250 megawatt  
10 unit verses adding 507 megawatts of capacity or 700  
11 megawatts of capacity. And it's just simply how much  
12 are you allocating to that first unit on a dollar per  
13 kW basis.

14 So it's very difficult, I'll say, to compare  
15 directly their dollar-per-kW cost to our cost. That's  
16 one point.

17 Another point is, I'm not sure how our  
18 differences in AFUDC are calculated because we have  
19 different construction schedules to support our  
20 project verses what they may end up doing with their  
21 project. I'm also not clear -- and, again, we stated  
22 that they don't seem to be including all of the site  
23 development costs for the build-out as we are in our  
24 estimate. So there are inherent differences that  
25 don't allow you to compare directly on a dollar per kW

1 basis. You've got a different amount of capacity.  
2 You've got a different amount of cost. We don't have  
3 an apples to apples comparison here.

4 Q Nonetheless, in 1996, isn't it true that  
5 their total project cost for 507 megawatts of combined  
6 cycle natural gas-fired capacity is less than TECO's  
7 estimation of the cost to construct one natural  
8 gas-fired combined cycle plant of approximately 220  
9 megawatts of capacity at the site?

10 A If you pull out the gasifier related sunk  
11 costs, which I've said before, those are costs that we  
12 seek to recover. And in the event that if we had  
13 moved from IGCC unit to the combined cycle unit, you  
14 take out the 245 million and divide by the 220  
15 megawatts, you're taking out a significant amount on  
16 the dollar-per-kW. When you make that adjustment and  
17 other adjustments, my estimate is that we are within  
18 approximately, on a comparable basis, about \$180 per  
19 kW.

20 Q What would the total with AFUDC excluding  
21 sunk costs for 1996 be approximately?

22 A For Florida Power Corp's?

23 Q No, for TECO's combined cycle alternatives.

24 A Without AFUDC?

25 It would be \$767 per kW, but when you make

1 that adjustment, as I mentioned before about having  
2 additional capacity, you effectively reduce the 200 --  
3 I'm sorry, let me calculate this number real quick.

4           Let me back up one step. The land and site  
5 development costs I was referring to in the Florida  
6 Power Corp estimate, if you take that, just that  
7 number for Tampa Electric and divide by the 233  
8 megawatts, that results in a 283 dollar-per-kW  
9 component that's included in the number I just gave  
10 you, the 767. So if you were to make a comparable  
11 adjustment and assume that we were putting in a  
12 similar unit, combined cycle unit, and now you are  
13 sharing that fixed cost with the land and site  
14 development costs, you effectively cut that 283 number  
15 in half, so it becomes \$140 which would reduce the  
16 \$767 per kW number to approximately 627 per kW. So if  
17 you were to make those adjustments, we would be  
18 comparing \$627 per kW without AFUDC versus their 502.

19           Q     Now, would you turn to Page 67 of the  
20 exhibit package that you were handed before?

21           A     The blue book?

22           Q     Yes, sir. Have you ever seen this before?

23           A     Yes.

24           Q     Would you describe what you believe it to  
25 be?



1                   **CHAIRMAN CLARK:** Let me be clear, Mr. Elias.  
2 Have we identified it as an exhibit?

3                   **MR. ELIAS:** It's Exhibit 3.

4                   **CHAIRMAN CLARK:** What exhibit is it?

5                   **MR. ELIAS:** 3.

6                   **CHAIRMAN CLARK:** I don't think so.

7                   **MR. ELIAS:** You are right. I ask that this  
8 be marked.

9                   **CHAIRMAN CLARK:** All right. It is Staff  
10 Composite Exhibit 4, Witness Thomas Hernandez, will be  
11 identified as Exhibit 6.

12                   (Exhibit No. 6 marked for identification.)

13                   **A**     Okay. I'm set.

14                   **Q**     (By Mr. Elias) Do you recognize it?

15                   **A**     Yes, I do.

16                   **Q**     Would you describe what you know it to be?

17                   **CHAIRMAN CLARK:** Mr. Elias, will you tell us  
18 again what page we are supposed to be on?

19                   **MR. ELIAS:** Page 67.

20                   **WITNESS HERNANDEZ:** If I may, I would like  
21 to in the description of what I believe this to be, I  
22 would like to read directly from my response. It's  
23 just a couple of paragraphs that I provided. It's  
24 response to Late-Filed Exhibit No. 7 from my  
25 deposition.

1                   **CHAIRMAN CLARK:** Yes, you can explain what  
2 it is, Mr. Hernandez.

3                   **WITNESS HERNANDEZ:** Okay, thank you.

4                   This exhibit provides an economic analysis  
5 that compares the Tampa Electric Polk Unit One IGCC  
6 project to a hypothetical alternative. I believe this  
7 comparison that was requested is not appropriate  
8 because it compares the similar unit operating  
9 characteristics.

10                   The Staff has provided yet a third acid  
11 test, set of fuel price assumptions, and Tampa  
12 Electric does not believe that the requested fuel  
13 forecast is realistic. This acid test methodology  
14 involves the arbitrary development of a natural gas  
15 price forecast that is based on fixing the price  
16 differential between coal and natural gas and  
17 maintaining the differential from an assigned year,  
18 and that describes the request that was asked.

19                   **CHAIRMAN CLARK:** And your concerns about the  
20 request.

21                   **WITNESS HERNANDEZ:** I have additional  
22 concerns.

23                   **CHAIRMAN CLARK:** All right. Go ahead,  
24 Mr. Elias.

25                   Q            (By Mr. Elias) Would you detail those

1 concerns? First of all, what specifically did the  
2 request ask for?

3 A As I just said, it was specifically another  
4 version of Staff's acid test methodology as a fuel  
5 price sensitivity.

6 Q And what does this exhibit detail?

7 A It entails comparing a combined cycle unit  
8 to an IGCC unit using a very hypothetical and  
9 unrealistic fuel price forecast.

10 Q What fuel price forecast was used in the  
11 development of the revenue requirement for each of the  
12 revenue requirement calculations that were performed  
13 as part of this late-filed exhibit?

14 A Okay. To answer that, I'm going to read a  
15 couple of other pieces from this response that better  
16 describes the other acid tests, and then it leads to a  
17 direct response to Mr. Elias' question.

18 Staff's first acid test analysis in this  
19 proceeding was requested in Interrogatory No. 14.  
20 This test was based on Staff's coal price and natural  
21 gas price and not Tampa Electric's and utilized Tampa  
22 Electric's escalation rates for coal pricing. While  
23 this acid test forecast was not accepted by Tampa  
24 Electric as a viable forecasting method, the results  
25 of this analysis indicated that the IGCC technology is

1 the most cost-effective alternative using Staff's acid  
2 test natural gas forecast.

3 Staff had us do a second acid test analysis  
4 that was requested in our Interrogatory No. 27. This  
5 test was based on Tampa Electric's coal and natural  
6 gas price forecast used for each cost-effectiveness  
7 study that I've talked about previously, and then  
8 fixing the price differential between the coal and  
9 natural gas in the fourth year and maintaining a  
10 constant differential.

11 While this acid test forecast was not  
12 accepted by Tampa Electric as a viable forecasting  
13 method, the results of this analysis indicated that,  
14 again, IGCC technology is the most cost-effective  
15 alternative again using Staff's second acid gas --  
16 acid test natural gas forecast.

17 In the response to this Late-Filed Exhibit  
18 No. 7, Staff requested -- again in my deposition to  
19 perform this analysis, in this analysis Staff provided  
20 both the coal price and natural gas price forecast to  
21 be used for each cost-effectiveness study again  
22 provided in previous responses. In addition, Staff  
23 requested that the analysis be based on an economic  
24 dispatch to the combined cycle unit and the IGCC unit,  
25 and that the gas should be treated as firm instead of

1 using an as-available natural gas assumption.

2 Well, this third acid test forecast was  
3 again not accepted by Tampa Electric as a viable  
4 forecasting method. The results of this analysis also  
5 indicated that the IGCC technology is the most  
6 cost-effective alternative on a levelized cost basis  
7 on a cents per kWh basis. The prior two -- prior  
8 analyses in the response to Interrogatories 14 and 27  
9 were based on system revenue requirements because the  
10 dispatch and, therefore, the generation was the same.  
11 In this analysis you cannot compare system revenue  
12 requirements because you are comparing two different  
13 output, generation output. The IGCC unit would  
14 dispatch at a higher capacity factor than the combined  
15 cycle unit would, so you've got to compare on a  
16 levelized cost basis the cost to produce the net  
17 generation produced by the alternative and put it on a  
18 cents per kWh. So that was a difference in the  
19 response.

20 But, again, in this response, the IGCC  
21 technology was cost-effective compared to the combined  
22 cycle.

23 Q Isn't this cost-effectiveness analysis based  
24 on economic dispatch?

25 A Yes.

1           Q     Now the coal price that was used in each  
2 initial year of the study was Tampa Electric's Big  
3 Bend -- or Big Bend 4 delivered coal price?

4           A     We used both the coal and the gas price  
5 forecast that was provided to me in a handout at my  
6 deposition.

7           Q     And were those Tampa Electric's fuel price  
8 forecasts for coal?

9           A     It was not Tampa Electric's fuel forecast  
10 used for the Polk IGCC unit. Staff selected a Big  
11 Bend 4 coal price to be used.

12          Q     And what was the source of the natural gas  
13 price forecast?

14          A     The natural gas price forecast in response  
15 to this exhibit basically set -- or established a  
16 fixed differential based on the first year forecast  
17 and maintained that differential for the entire study  
18 period. It's not a forecast, it's just a calculation  
19 of what the natural gas price would be by fixing the  
20 differential.

21          Q     Was the natural gas price forecast Tampa  
22 Electric's, in the first year, Tampa Electric's  
23 estimation of what it was going to be in 1996 --  
24 excuse me, '93?

25          A     It depends on which year we are talking

1 about, because I believe we did it for '92, '93, 1994  
2 and '95.

3 Q Well, in each of those studies, what was the  
4 basis for the natural gas price that was used in this  
5 calculation?

6 A It appears to be Tampa Electric's projection  
7 for that first year, but that's where it stops.

8 Q And then the differential between the two  
9 fuels was held constant throughout the life of the  
10 study period; is that correct?

11 A That's correct.

12 Q Now, you mentioned levelized cents per  
13 kilowatt hour cost. Does Tampa Electric plan its  
14 system based on the levelized cents per kilowatt hour  
15 cost?

16 A No. But for purposes --

17 Q Does Tampa Electric -- I'm sorry.

18 A But for purposes of this analysis, you can't  
19 compare system revenue requirements. And Tampa  
20 Electric would not develop a forecast and use this  
21 type of forecast for cost-effectiveness studies to  
22 begin with. This is simply -- in order to compare two  
23 different alternatives, you have got to put them on a  
24 common plane. And as soon as you have different  
25 generation produced by the two technologies, the one

1 that dispatches at a lower capacity factor is going to  
2 result in lower fuel.

3           So you can't compare something that's going  
4 to dispatch in our system at 40% capacity factor  
5 verses 80, because even if they had the same fuel  
6 prices, it's going to have lower revenue requirements,  
7 simply because it's not using as much fuel.

8           Q     Doesn't Tampa Electric plan its capacity  
9 additions based on a cumulative present worth revenue  
10 requirements comparison?

11           A     Yes.

12           Q     And isn't that what this exhibit does?

13           A     No.

14           Q     I'm sorry, I am not understanding. Why not?

15           A     Staff requested an analysis using this fuel  
16 price forecast, and they gave us a format to provide  
17 that response, which consisted of revenue requirement  
18 stream, as well as a cents per kWh. And again, for  
19 the reasons I've already mentioned, you can't compare  
20 revenue requirements; you've got to look at it on a  
21 fixed and operating cost verses the generation  
22 produced by the alternative. So you put it on a cents  
23 per kWh just to compare the relative costs, and that's  
24 how we responded to this late-filed exhibit.

25           Q     This analysis shows the cumulative present



1 worth revenue requirements on a system basis -- on a  
2 unit basis, assuming dispatch on Tampa Electric's  
3 system and a given fuel price sensitivity; is that  
4 correct?

5       A     That is correct. We determine how the  
6 combined cycle unit would dispatch -- economically  
7 dispatch on our system and put that generation in.  
8 But the key word is this is a unit cost, and that's  
9 exactly why you have got to do the comparison on a  
10 cents per kWh. We did not plan our new generation  
11 alternatives on a look unit; it's on a system economic  
12 look.

13       Q     Now we asked for that evaluation in  
14 Interrogatory 68, did we not?

15       A     This is Late-Filed No. 7.

16       Q     What do you believe would be more  
17 appropriate?

18       A     What was the interrogatory?

19       Q     No. 68.

20       A     I believe what you asked for in  
21 Interrogatory No. 68 was, yet, a fourth acid test  
22 where you fixed the differential at something close to  
23 50 cents per million verses the \$1.10 that was used in  
24 the response to late-filed. So I don't believe that's  
25 what you asked for.

1 Q But those were system revenue requirements,  
2 correct?

3 A I'm not sure. We did not complete this  
4 analysis.

5 MR. BEASLEY: Chairman Clark, we objected to  
6 Interrogatory No. 68, and that objection stood. No  
7 motion to compel was ever pursued, and the time for  
8 discovery is concluded, as Staff pointed out to us in  
9 a motion or an objection they filed late last week.

10 Q (By Mr. Elias) Now, in your deposition  
11 you were asked about the increasing likelihood of  
12 competition in the generation market. Do you recall  
13 that question?

14 A I believe I do.

15 Q And I believe you stated that you had no  
16 opinion about that subject?

17 A About how competition --

18 Q About the likelihood of competition in 1996  
19 verses 1991 in a generation market?

20 MR. BEASLEY: I believe Mr. Rowe would be a  
21 more appropriate witness if you would want to redirect  
22 that question.

23 MR. ELIAS: And I will ask the question of  
24 Mr. Rowe, but I'd like to hear what the system planner  
25 has to say.

1                   **CHAIRMAN CLARK:** I think he's asking him  
2 about his responses in his deposition to that  
3 question, and I will allow it.

4                   But I will point out, we are taking an awful  
5 lot of time with the first two witness.

6                   **A**     Could you ask the question again? I'm  
7 sorry.

8                   **Q**     **(By Mr. Elias)** The question was: Do you  
9 recall being asked in your deposition as to whether or  
10 not you had an opinion as to whether or not generation  
11 -- competition in generation was more likely in a  
12 given time horizon now, than it was in 1991?

13                  **A**     Yes.

14                  **Q**     And you had no opinion at the time?

15                  **A**     That's correct.

16                  **Q**     Have any subsequent or intervening events  
17 since your deposition changed your mind about the  
18 likelihood of competition in the relative near term?

19                  **A**     I believe I said in my deposition, and I'll  
20 say here, that I believe competition has been here for  
21 the past several years.

22                  **Q**     Now -- (pause)

23                           **MR. ELIAS:** That's all the questions we  
24 have.

25                           **CHAIRMAN CLARK:** Commissioners.

1           Mr. Hernandez, I just want to ask something  
2 with respect to your estimate of sunk costs. You  
3 indicated that when you determined sunk costs -- I'm  
4 on Page 11 -- you felt your estimate was conservative  
5 because you didn't include contractual commitments and  
6 associated contract cancellation penalties. And  
7 although you did not estimate the value of salvage, I  
8 glean from your testimony that you figured that they  
9 would at least be a wash so that your estimate of sunk  
10 costs would be invalid.

11           **WITNESS HERNANDEZ:** That's correct.

12           **CHAIRMAN CLARK:** Okay. I guess -- what were  
13 the potential penalties from cancellation of  
14 contracts?

15           **WITNESS HERNANDEZ:** I'm not aware of the  
16 specific terms, other than I am aware that contractual  
17 penalties existed in the event that we cancelled the  
18 project at any point in time. And those were vendor  
19 specific. I don't have the specific information. I'm  
20 just aware that there are significant costs associated  
21 with cancelling orders on equipment.

22           **CHAIRMAN CLARK:** Do you know what the  
23 salvage value would have been of some of the  
24 equipment?

25           **WITNESS HERNANDEZ:** In discussions I've had

1 with Mr. Black -- and I'm leaning on his expertise in  
2 this area -- I agree with his position that  
3 effectively there would be a wash on the salvage cost  
4 verses the dismantling costs. To the extent as  
5 further along you move along with the project, the  
6 dismantling costs increase and effectively that would  
7 be a wash.

8 **CHAIRMAN CLARK:** I didn't see that in his  
9 testimony, but you had conversations with him to that  
10 effect?

11 **WITNESS HERNANDEZ:** Yes.

12 **CHAIRMAN CLARK:** I guess my concern was that  
13 I wanted to have more comfort in the fact that you had  
14 looked at those costs and could feel fairly certain  
15 that they would at least be a wash, or any salvage  
16 value or any money you would get from selling the  
17 equipment would not cover the dismantlement costs or  
18 the cancellation penalties. I guess beyond what  
19 you've just described, you did no research into  
20 exactly quantifying those costs.

21 **WITNESS HERNANDEZ:** No. We did not do a  
22 quantitative analysis. It was a qualitative

23 assessment based on discussions I had with Mr. Black.

24 **COMMISSIONER DEASON:** What do you mean by,

25 "In addition" -- I'm on Page 12. "In addition the DOE

1 funding received on a cash-call basis was not assumed  
2 to be refundable from Tampa Electric to DOE."

3           **WITNESS HERNANDEZ:** In each of the  
4 cost-effectiveness studies, any amount on the DOE  
5 funding that we received on a cash call basis, and  
6 that again was based on a review of expenses incurred  
7 and was reviewed by the DOE before funds were  
8 disbursed, whatever had been returned or disbursed  
9 back to Tampa Electric at the time that we did the  
10 study was assumed to be retained.

11           In the event that -- if we had changed our  
12 mind or if the economics supported doing something  
13 different, again in the interest of providing the most  
14 cost-effective alternative for our ratepayers, that if  
15 we had changed to a combined cycle configuration, it  
16 wasn't clear how much or all of the DOE funding that  
17 may have to be refunded.

18           **CHAIRMAN CLARK:** Why wasn't it clear? I  
19 mean, was there nothing in your arrangement with DOE  
20 that indicated that if you didn't go forward with this  
21 project that you would have to pay them back whatever  
22 they had paid you.

23           **WITNESS HERNANDEZ:** There's cancellation  
24 provisions, and I'm not that versed on the contract.  
25 I guess where I came from is that the IGCC project was

1 cost-effective, even though we retained any DOE  
2 funding -- I'm looking at a combined cycle  
3 alternative.

4 CHAIRMAN CLARK: Okay. It would have added  
5 to the sunk cost.

6 WITNESS HERNANDEZ: Exactly.

7 CHAIRMAN CLARK: Redirect.

8 REDIRECT EXAMINATION

9 BY MR. BEASLEY:

10 Q Mr. Hernandez, Mr. McWhirter asked you  
11 several questions about whether you considered the  
12 Polk Power Station to be stranded investment. Would  
13 it be appropriate for this Commission to make and  
14 determination in this proceeding whether that power  
15 station should be considered standard investment?

16 MR. McWHIRTER: I object to the question  
17 because --

18 THE COURT REPORTER: Excuse me, could you  
19 turn your mike on.

20 MR. McWHIRTER: I object to the question  
21 because he's asking the witness --

22 COMMISSIONER GARCIA: You turned it off.

23 MR. McWHIRTER: I'm sorry. Red means "on"  
24 to me for some reason.

25 CHAIRMAN CLARK: No, red means "off."

1           **MR. McWHIRTER:** I'm with you now. I object  
2 to the question on the grounds that he's asking the  
3 witness to answer the ultimate question that is a  
4 policy decision of the Commission and beyond the realm  
5 of this witness' expertise.

6           **MR. BEASLEY:** I'm not asking the witness to  
7 rule on the question, I'm just asking his opinion as  
8 to whether he thinks this unit in the current day  
9 circumstances with regulation as it is in Florida,  
10 whether it should be treated as stranded investment.

11           **COMMISSIONER DEASON:** I'll allow the  
12 question for what it's worth.

13           **MR. BEASLEY:** Please answer.

14           **CHAIRMAN CLARK:** Do you understand it,  
15 Mr. Hernandez?

16           **WITNESS HERNANDEZ:** I'm not sure how to  
17 take what you just said. (Laughter)

18           **MR. BEASLEY:** We'll withdraw the question.

19           **Q**       **(By Mr. Beasley)** Mr. Hernandez, Mr. Howe  
20 asked you whether you looked at a stand-alone combined  
21 cycle unit. You said you did in the 1992 study, but  
22 you picked up with an integrated gasification combined  
23 cycle unit for the '93 through '96 studies; is that  
24 correct?

25           **A**       That's correct.



1 Q Why did you not use a combined cycle unit in  
2 those studies from 1993 to 1996?

3 A Why we did not use a combined cycle unit?

4 Q Right, a stand-alone combined cycle unit.

5 A Because we had already acquired and moved  
6 forward with the design of a combined cycle unit that  
7 was set up to use syngas produced from a gasification  
8 system. Any modifications that would be required  
9 would require extensive capital costs just to change  
10 the HRSG configuration. So it made more sense to use  
11 our combined cycle power block.

12 Q Would you turn to your Exhibit TLH-1 on  
13 Page 87. And you were asked some questions by  
14 Commissioner Deason regarding the gasifier related  
15 sunk cost shown in the combined cycle column of that  
16 page of your exhibit, and that's the \$244,942. Do you  
17 recall those questions?

18 A I'm sorry, I missed the page reference.

19 Q Page 87.

20 A Okay. Could you ask the question again?

21 Q Yes. The question was whether you recalled  
22 Commissioner Deason's questions about the \$244,942; is  
23 that correct?

24 A Yes. It was a gasifier related sunk  
25 244,942,000.

1           Q     Is that number included in the \$506,165,000  
2 number shown as the total with AFUDC for the IGCC?

3           A     Yes. In my answer to Commissioner Deason  
4 regarding that it's included in plant, it's, in fact,  
5 the exact same number that we identified as gasifier  
6 related sunk cost with the combined cycle unit.

7           Q     Have you prepared a redirect exhibit,  
8 Mr. Hernandez, pertaining to a marginal cost/marginal  
9 revenue analysis compared with a similar analysis that  
10 includes sunk costs?

11          A     Yes, I have.

12           MR. BEASLEY: Let me distribute this.

13           MR. HOWE: Excuse me, Chairman Clark.

14 Mr. Beasley, could you tell us what question asked on  
15 cross this is a response to?

16           MR. BEASLEY: This has to do with the line  
17 of questions where Mr. Hernandez was asked about sunk  
18 costs and whether they were included or excluded for  
19 his analysis. And his response thereto which said, it  
20 has to be done the same way on both sides of the  
21 equation if at all in making these comparisons.

22           CHAIRMAN CLARK: The document entitled:  
23 "1994 Study System Capital Revenue Requirement  
24 Comparison" will be identified as Exhibit 7.

25                   (Exhibit No. 7 marked for identification.)

1           Q        (By Mr. Beasley) Mr. Hernandez, was this  
2 document prepared under your direction and  
3 supervision?

4           A        Yes, it was.

5           Q        Can you please explain the contents of it  
6 and what it discloses?

7           A        Yes, I will. This is a very simple  
8 graphical representation of how we treated the sunk  
9 costs, the gasifier related sunk costs in our  
10 analysis. And what this compares, this is a graph of  
11 system differential cumulative present worth revenue  
12 requirements, that's the Y-axis. And we are looking  
13 at two scenarios.

14                    On the left-hand side we are comparing the  
15 total system costs with the gasifier related sunk.  
16 And I'm only focusing on the capital component because  
17 that's where we are making the change. These numbers,  
18 in fact, align with other information that we have  
19 provided in response to several interrogatories. And  
20 the bottom line is we're showing the IGCC plan verses  
21 the combined cycle plan, that's the 954 million and  
22 the 778 million. And if you take that differential,  
23 we're plotting the differential of 176 million. That  
24 number compares directly to the response in  
25 Interrogatory No. 3 so we are taking about the same

1 numbers.

2 And I'm using the 1994 study. What we've  
3 done is, the intent here is to demonstrate that the  
4 treatment of gasifier related sunk, in order to look  
5 at an incremental cost basis, was included in our  
6 original studies on both sides of the equation so that  
7 you did indeed look at incremental costs, to complete  
8 either the IGCC project or the combined cycle project.  
9 If you pull those sunk costs out, gasifier related  
10 sunk on the combined cycle side, you've got to do it  
11 on the IGCC. That results in the graph -- or the bars  
12 on the right-hand side. And effectively by reducing  
13 the gasifier related sunk costs and the appropriate  
14 cumulative present worth revenue requirements  
15 associated with those sunk costs, you effectively  
16 result in the same differential, 176 million. So the  
17 inclusion or the exclusion of the sunk costs do not  
18 affect the cost-effectiveness of the alternative. In  
19 either case you are going to seek recovery of those  
20 sunk costs.

21 Q Mr. Hernandez, in performing your  
22 cost-effectiveness analyses, did you use as-spent  
23 dollars as the basis of sunk cost, as opposed to  
24 committed dollars?

25 A That is correct.

1 Q Are there other costs which would be sunk if  
2 you had cancelled the IGCC unit construction?

3 A Yes, there would be.

4 Q For example?

5 A Contractual penalties, removal of equipment  
6 that's no longer going to be used. Those costs were  
7 not included.

8 Q Which was the more conservative approach in  
9 making the sunk cost comparison?

10 A We were more conservative by excluding those  
11 additional costs.

12 Q Mr. Elias asked you some questions regarding  
13 Page 222 of Mr. Black's exhibit. Do you have that  
14 available?

15 A Yes.

16 Q The heat rate calculations on that page,  
17 were they based on LHV? And if so, could you tell me  
18 what that means?

19 A Yes. LHV represents lower heating value.  
20 And the correct basis for determining heat rate is on  
21 a higher heating value. You've got to account for the  
22 latent heat vaporization of the water that's formed.  
23 So the numbers that are shown here are not an  
24 appropriate basis and should not be compared to the  
25 heat rates that were used in our cost-effectiveness

1 studies, which were based on the higher heating value.

2 Q Mr. Elias also asked you some questions  
3 regarding savings presented to management. You were  
4 asked some questions regarding what you presented to  
5 management. Did any of the cost-effectiveness studies  
6 presented to management produce savings at a level  
7 less than the \$62 million which formed the basis for  
8 the Polk Unit One need determination study?

9 A No. All were in excess of the 62 million  
10 savings.

11 Q Is this also true for the cost-effectiveness  
12 calculations you provided to the Commission in  
13 response to Staff's Interrogatory No. 3 in this  
14 proceeding?

15 A Yes. All the results of our  
16 cost-effectiveness studies using Tampa Electric's  
17 assumptions did indeed result in greater savings than  
18 \$62 million.

19 Q Have you prepared some charts reflecting in  
20 a graphic form the savings reported to management for  
21 1992, 1993, and 1994?

22 A Yes, I have.

23 MR. BEASLEY: I'm going to have a document  
24 handed to you and ask if you can identify it for us.  
25 Was this document prepared under your direction and

1 supervision?

2 A Yes, it was.

3 MR. BEASLEY: I'd ask that the exhibit be  
4 marked for identification.

5 CHAIRMAN CLARK: The document entitled  
6 Annual Cost-Effectiveness for '92, '93 and '94, will  
7 be marked as Exhibit 8.

8 (Exhibit No. 8 marked for identification.)

9 Q (By Mr. Beasley) Mr. Hernandez, could you  
10 briefly describe for us what this exhibit shows?

11 A Yes. This is a graphic representation of  
12 the net system cumulative present worth differential  
13 revenue requirements for the three presentations of  
14 the Polk Unit One cost-effectiveness studies that were  
15 made to senior management at Tampa Electric and TECO  
16 Energy. On the left-hand column or the Y-axis, we're  
17 showing in millions of dollars the differential system  
18 revenue requirements, and we are showing for the three  
19 presentations that were made in December '92, August  
20 1993 and June 1994 to management.

21 The \$62 million line that's shown there is  
22 simply the basis for the cost-effectiveness savings  
23 associated with our determination of need document and  
24 the basis for management's decision at Tampa Electric  
25 and TECO Energy to move forward with the Polk IGCC

1 unit as our next generating plant and was the basis  
2 for our determination of need filing in September of  
3 1991.

4 In all of the three presentations,  
5 subsequent to our determination of need proceeding,  
6 were in excess of the \$62 million as I had just  
7 mentioned.

8 Q Did you prepare a corollary exhibit  
9 reflecting the results of the five cost-effectiveness  
10 studies that were provided in response to  
11 Interrogatory No. 3 from the Staff?

12 A Yes, I have.

13 MR. BEASLEY: I ask that that be  
14 distributed.

15 Q (By Mr. Beasley) Mr. Hernandez, was this  
16 document prepared under your direction and  
17 supervision?

18 A Yes, it was.

19 MR. BEASLEY: I ask that the document  
20 entitled Annual Cost-effectiveness be marked for  
21 identification.

22 CHAIRMAN CLARK: I guess it will be the  
23 Annual Cost-effectiveness for years 1992 through '96.

24 MR. BEASLEY: Mr. Hernandez, please --

25 CHAIRMAN CLARK: That will be No. 9.



1 (Exhibit No. 9 marked for identification.)

2 MR. BEASLEY: I'm sorry.

3 Q (By Mr. Beasley) Mr. Hernandez, could you  
4 please briefly describe this exhibit for us?

5 A The same concept here where we have got a  
6 graphical representation comparing the differential  
7 system cumulative present worth revenue requirements  
8 for the IGCC unit to a combined cycle unit, and these  
9 numbers match up with our response to Interrogatory  
10 No. 3. And we are showing separate bars and the  
11 associated savings for each of the cost-effectiveness  
12 studies that were completed in response to the  
13 interrogatories, Interrogatory No. 3, and the basis  
14 for other responses in this proceeding.

15 And again, we are showing the \$62 million  
16 line that was the basis for Tampa Electric and TECO  
17 Energy Management to move forward with the project in  
18 our initial petition for need filing. And in ever  
19 study that we conducted, the savings were in excess of  
20 the 62 million.

21 Q I want to hand you one last redirect  
22 exhibit.

23 MR. BEASLEY: Actually, that's one last  
24 redirect exhibit on the cost-effectiveness study, and  
25 I ask that it be marked for identification.

1                   **COMMISSIONER DEASON:** It will be identified  
2 as Exhibit 10.

3                   (Exhibit No. 10 marked for identification.)

4                   **MR. BEASLEY:** Thank you.

5                   **Q**        **(By Mr. Beasley)** Mr. Hernandez, do you  
6 recognize the document that I've handed to you that's  
7 been marked as Exhibit 10?

8                   **A**        Yes, I do.

9                   **Q**        Was it prepared under your direction and  
10 supervision?

11                   **A**        Yes, it was.

12                   **Q**        Could you please tell the Commission what  
13 the import of this exhibit is?

14                   **A**        This is a time line comparing the cumulative  
15 system present worth differential revenue requirements  
16 over the course of the study period for each  
17 cost-effectiveness study. It's a more detailed graph  
18 than follows from the preceding chart and the  
19 information, for example, for the 1992 study is  
20 identical. This is simply a time line.

21                   So for the 1992 cost-effectiveness study,  
22 what we've showing, which is identified as a square on  
23 this graph, we were plotting through time the  
24 cumulative present worth differential revenue  
25 requirements. And the resulting line by the end of

1 year 2021 matches up with the same bar that was  
2 provided on the other graph. So this is an expansion  
3 of the other graph.

4           The other line that we are showing is the  
5 cumulative present worth revenue requirements of the  
6 fuel savings associated with the IGCC unit. So for  
7 the 1992 study, you have got an immediate savings to  
8 our ratepayers associated with operating the IGCC  
9 unit. And the result in fuel savings gets close to  
10 about \$380 million on a cumulative present worth  
11 basis.

12           And as the other thing to point out on this  
13 first graph is that there is a point in time where on  
14 a cumulative system worth revenue requirement basis,  
15 that the total cost or benefits associated with the  
16 IGCC project are in an intermediate time frame around  
17 2009 in terms of a break-even point. But you do  
18 realize the significant fuel savings beginning with  
19 the first year of operation of the unit.

20           In 1993, going to the second page, similar  
21 analysis again comparing the benefits associated with  
22 operating the IGCC unit, the fuel benefits, and again  
23 looking at the crossover points on a total system cost  
24 basis, and again showing the cost-effectiveness of the  
25 unit. In the 1994 study, we are showing both the

1 benefits of the Section 29 tax credit associated with  
2 both the fuel and the total system benefits. In  
3 addition we are showing you the benefits associated  
4 with the petroleum coke option. And in here you can  
5 visually see that there are additional benefits  
6 associated with the petroleum coke blend option,  
7 compared to the all coal option, which utilizes the  
8 Section 29 tax credits. You see the differential on  
9 the fuel.

10 For 1995, similar profile. The break-even  
11 point is moving closer, and again we are showing the  
12 Section 29 tax credits benefit verses the petroleum  
13 coke/coal blend related to the fuel savings and total  
14 costs.

15 The last graphic is the same analysis for  
16 1996 cost-effectiveness study. And you see that the  
17 break-even point is approximately in the year 1999,  
18 year 2000 in terms of total cost. And again, you see  
19 the fuel savings associated with the IGCC unit.

20 Q Mr. Hernandez, you were asked questions  
21 about the reasonableness of Tampa Electric's  
22 assumptions in 1994 and 1995 in its cost effectiveness  
23 studies, that it would be able to secure a change in  
24 the tax law to avail itself for the Section 29 tax  
25 credits. Did you have any available backup

1 assumptions in the event the tax credits were not  
2 available?

3       **A**    Yes. We always had the option to go to a  
4 petroleum coke/coal blend. And the analysis that we  
5 just went through indicates the significant fuel  
6 savings associated with going to a 65%-35% petroleum  
7 coke/coal blend that we feel very confident that the  
8 unit could operate at. And in fact, we are expecting  
9 to operate at a 75% petroleum coke/coal blend in our  
10 1996 study.

11       **Q**    Was the cost-effectiveness of the Polk IGCC  
12 ever dependent on the availability of the Section 29  
13 tax credit?

14       **A**    No.

15       **Q**    Mr. Elias asked you about lower escalation  
16 factors and inflation rates as being something that  
17 could influence the overall cost of a power plant  
18 construction project. Do you recall that?

19       **A**    Yes.

20       **Q**    Are there other factors that could influence  
21 the total cost in the other direction?

22       **A**    Yes, significant factors -- I mean, numerous  
23 factors.

24       **Q**    On the document entitled Florida Power  
25 Corporation Polk County Generation Project marked as

1 Staff Exhibit No. 5, can you verify the accuracy of  
2 any of the numbers on that page?

3 A No, I cannot.

4 Q Can you say what they include or don't  
5 include?

6 A No, I cannot.

7 Q Could they all be wrong for all you know?

8 A They could be.

9 Q They could be right, too, couldn't they?

10 A Yes, they could.

11 Q You had some questions regarding land  
12 acquisition and site development by Mr. Elias about  
13 the amount of land at the Polk Power site and the cost  
14 of site preparation -- I'll tell you what, I'm going  
15 to defer those questions.

16 Mr. Elias asked you, Mr. Hernandez, a  
17 general -- or several questions about a schedule in  
18 Composite Exhibit 6, which is a variation of a  
19 so-called acid test calculation. Do you recall that?

20 A On Composite No. 6.

21 Q Yes. That's the blue book with your name on  
22 the cover.

23 A Okay.

24 Q Staff has specified that the Big Bend  
25 Station coal forecast be used in the calculation; is

1 that correct?

2 A That's correct.

3 Q Was that appropriate to use?

4 A No, it was not.

5 Q How much bias with the use of Big Bend  
6 instead of the Polk Power Station coal cost affect  
7 that calculation?

8 A You exclude the potential benefit of  
9 petroleum coke/coal blend which results in an  
10 effectively lower cost than the Big Bends 4 coal price  
11 that was offered or proffered by Staff.

12 MR. BEASLEY: Thank you. No further  
13 redirect.

14 CHAIRMAN CLARK: Exhibits.

15 MR. BEASLEY: I would move Exhibit No. 3, as  
16 well as 7, 8, 9, and 10.

17 MR. HOWE: Chairman Clark, I'm going to  
18 object to Exhibit 7, 8, 9, and 10. Exhibit 7, to  
19 begin with, is apparently a tautology. What you have  
20 is, if you've got  $A \text{ minus } B \text{ equal } C$ , if you reduce A  
21 and B by equal amounts, C will stay the same.

22 Apparently what Tampa Electric has done in  
23 this schedule is reduce both the IGCC capital and the  
24 combined cycle capital by \$48 million. This is  
25 purportedly based on the 1994 study. When I look at

1 the exhibits to Mr. Hernandez' testimony, I see that  
2 the sunk costs were approximately \$35 million in 1994.  
3 These numbers are totally unexplained, and it's a  
4 little late to try to do it on redirect. This does  
5 not answer anything that came up in the Company's --  
6 in the cross examination of the Company's witness.

7 **CHAIRMAN CLARK:** Mr. Beasley.

8 **MR. BEASLEY:** Chairman Clark, this exhibit  
9 was prepared by Mr. Hernandez in an effort to clarify  
10 this particular point. What it does, it shows that  
11 his methodology, Mr. Hernandez's methodology produces  
12 exactly the same results as Public Counsel's  
13 witnesses' testimony.

14 **CHAIRMAN CLARK:** Well, let me ask the  
15 question. Mr. Howe, you seem to object based on the  
16 fact that he uses 48 million instead of 35. But you  
17 know you can just change those numbers. If you're  
18 subtracting the same numbers from both places, it is a  
19 tautology. I mean, what's the impact?

20 **MR. HOWE:** Oh, of course it is. But the  
21 point is it is not redirect. What this is, this is  
22 direct evidence that if anything should be put in the  
23 Company's direct case. Also, we will have absolutely  
24 no opportunity to establish why it is that on an  
25 incremental basis it just so happens that the cost of



1 finishing the IGCC unit in 1994 moves in lock step  
2 with the cost of finishing a much smaller component,  
3 the combined cycle in 1995.

4 **CHAIRMAN CLARK:** Let me ask you this.

5 **MR. HOWE:** There is no way for us to  
6 challenge whatever assumptions underlie this exhibit.

7 **CHAIRMAN CLARK:** Then it wasn't an  
8 appropriate redirect; is that correct.

9 **MR. HOWE:** Correct, that's our position.

10 **CHAIRMAN CLARK:** Mr. Beasley.

11 **MR. BEASLEY:** Chairman Clark, we believe  
12 that the exhibit simply clarifies a point of confusion  
13 that was raised during cross examination.

14 **CHAIRMAN CLARK:** We are only on Exhibit 7 at  
15 this point. Okay, I'm going to allow the exhibit.  
16 And I would encourage you, Mr. Howe, the next time  
17 that you would object at the time it's brought up and  
18 the redirect is conducted, he begins the redirect.

19 If your basis is it's beyond the scope of a  
20 cross examination, then you need to raise it at that  
21 time.

22 **MR. HOWE:** I understand that, Chairman  
23 Clark. But please keep in mind, all we are faced here  
24 is graphical representation with no explanation of  
25 what it means. I had to hear the witnesses

1 explanation of what this thing meant to fully  
2 comprehend that it had nothing to do with anything  
3 that came up in cross examination, in my opinion.

4 **CHAIRMAN CLARK:** Exhibit 8.

5 **MR. HOWE:** With Exhibit 8, this is  
6 apparently just a graphical representation to buttress  
7 what the Company's witness said in his direct case.  
8 It's just another way of saying what he said on  
9 direct; it does not address cross at all.

10 **MR. BEASLEY:** Chairman, that was Staff cross  
11 examination about what management was presented, and  
12 this was offered simply -- and I think Mr. Howe will  
13 agree that these numbers are unrefuted as being a  
14 representation of what was in the testimony but to  
15 show you what was presented to management in a clear  
16 and understandable format.

17 **MR. HOWE:** That's exactly my point. It's a  
18 graphical representation of what was already in the  
19 record.

20 **CHAIRMAN CLARK:** I'm going to allow that  
21 exhibit.

22 **MR. HOWE:** Exhibit 9, in my opinion, suffers  
23 from the same deficiencies. It a graphical  
24 representation of what the witness' direct testimony  
25 said. It is not offered to clarify anything. You

1 would have gotten the same effect by having the  
2 witness repeat what he'd said in his direct testimony.  
3 That's all this does in graphical form.

4 **CHAIRMAN CLARK:** Mr. Beasley.

5 **MR. BEASLEY:** The same response as to the  
6 last preceding chart. It does assist in responding to  
7 questions that were raised during Staff's cross  
8 examination.

9 **CHAIRMAN CLARK:** I'll allow that exhibit.  
10 Exhibit No. 10.

11 **MR. HOWE:** And I would have essentially the  
12 same objections, except on Exhibit No. 10, I honestly  
13 don't know where any of the numbers came from, and I  
14 did not here any real clear explanation from the  
15 witness on that subject. I have no idea how these  
16 differentials were calculated. Apparently, there's a  
17 differential fuel cumulative present worth revenue  
18 requirement that may or may not be extracted from  
19 existing exhibits in the record appended to the  
20 witnesses direct testimony. But if that is the source  
21 of this graphical representation, then I have the same  
22 objection. It is just another way of repeating what  
23 was said on his testimony.

24 **MR. BEASLEY:** And this was submitted,  
25 Chairman, in direct response to cross examination from

1 Staff and clarify's Tampa Electric's position on these  
2 issues.

3 CHAIRMAN CLARK: I'll allow that exhibit.  
4 Any other exhibits?

5 MR. ELIAS: Staff would move Exhibits 4, 5,  
6 and 6.

7 CHAIRMAN CLARK: Without objection, Exhibits  
8 4, 5, and 6 are admitted. I note that we did  
9 entertain an objection to Mr. Water's exhibit, but  
10 that was already ruled on.

11 Thank you, Mr. Hernandez.

12 (Witness Hernandez excused.)

13 CHAIRMAN CLARK: Mr. Smith. Why don't we go  
14 ahead and take a break until 3:30.

15 (Brief recess.)

16 COMMISSIONER KIESLING: Let's call the  
17 hearing back to order. Mr. Smith.

18 - - - - -

19 HUGH W. SMITH

20 was called as a witness on behalf of Tampa Electric  
21 Company and, having been duly sworn, testified as  
22 follows:

23 DIRECT EXAMINATION

24 BY MR. LONG:

25 Q Would you state your name, address and

1 current position with Tampa Electric Company?

2 CHAIRMAN CLARK: Mr. Long, you're going to  
3 have to get right to that microphone.

4 MR. LONG: Is this better, Chairman.

5 CHAIRMAN CLARK: Yes, thank you very much.

6 MR. LONG: All right. I'll try to maintain  
7 this distance.

8 COMMISSIONER KIESLING: When you turn your  
9 head to the witness, then we can't hear you again.  
10 Mr. Willis, could you turn yours around so maybe that  
11 will help, too. Thank you.

12 Q (By Mr. Long) Mr. Smith, would you state  
13 for the record your full name, your address and your  
14 current position with Tampa Electric Company?

15 A My name is Hugh Smith. My business address  
16 is 702 North Franklin Street, Tampa, Florida 33602.  
17 My current position is that I'm the director of the  
18 Energy Supply Services Department at Tampa Electric.

19 Q Are you the same Hugh W. Smith who caused to  
20 be filed direct written testimony in this proceeding?

21 A Yes, I am.

22 Q Do you have any changes or corrections to  
23 your prepared direct testimony as filed?

24 A Yes, I do.

25 As I mentioned in my deposition, taken in

1 this case, on Page 20 of my testimony, Line 2, there  
2 was a typographical error. The number indicated on  
3 that line that indicates \$2.34 per million Btu in  
4 February of 1996 should read \$5.34 per million Btu.  
5 And in Line 3 of that same page, that would indicate  
6 an increase of 254% instead of the number indicated on  
7 Line 3, which is 55%.

8 Q Are those the only corrections?

9 A Yes, they are.

10 Q If I were to ask you the questions that  
11 appear in your prepared direct testimony today would  
12 your responses be the same?

13 A Yes.

14 Q Do you adopt this prepared direct testimony  
15 as your sworn testimony in this proceeding?

16 A Yes, I do.

17 Q Mr. Smith, would you please summarize your  
18 direct testimony?

19 CHAIRMAN CLARK: Mr. Long, why don't we go  
20 ahead and insert the prefiled direct testimony of  
21 Mr. Smith into the record as though read with the  
22 changes noted.

23 MR. LONG: Thank you very much, Chairman.  
24  
25

1                                   BEFORE THE PUBLIC SERVICE COMMISSION

2   PREPARED DIRECT TESTIMONY

3   OF

4   HUGH W. SMITH

5  
6   Q.   Please state your name, address and occupation.

7  
8   A.   My name is Hugh W. Smith. My business address is 702 North  
9       Franklin Street, Tampa, Florida 33602. I am Director  
10      Environmental and Fuels of Tampa Electric Company.

11  
12   Q.   Can you please furnish a brief outline of your educational  
13      background and business experience?

14  
15   A.   I graduated from the University of Florida in December 1978  
16      with a Bachelor of Science degree. I began my career with  
17      Tampa Electric in 1979 as a chemist in the Production  
18      Department. Between 1979 and the present I have held  
19      various positions in the Production, Environmental Planning  
20      and Fuels Departments. I also worked in TECO Power  
21      Services as a project manager. In March of 1990 I became  
22      head of the Fuels Department and in March, 1995, I became  
23      Director Environmental and Fuels Department for the  
24      company.

25

1 Q. Have you previously testified before the Commission?

2

3 A. Yes I have. My prior participation in proceedings before  
4 this Commission includes testifying in the Polk Unit One  
5 Need Determination docket, Docket No. 910883-EI.

6

7 Q. What is the purpose of your testimony?

8

9 A. The purpose of my testimony is to describe three aspects of  
10 Polk Power Station. First, I address the fuel supply  
11 alternatives for Polk Unit One including details regarding  
12 the transportation of fuel for this unit and the  
13 appropriate quantities of inventories. Second, I discuss  
14 the reasonableness and prudence of our fuel price  
15 forecasting. The third aspect of my testimony addresses  
16 the environmental land requirements for this project.

17

18 Q. Have you prepared an exhibit in support of your testimony?

19

20 A. Yes. My Exhibit No. \_\_\_ (HWS-1), consisting of one document  
21 has been prepared under my direction and supervision.

22

23 Polk Unit One Fuel Supply

24 Q. Please describe the type of fuel that Tampa Electric will  
25 use in operating Polk Unit One during the demonstration



1 period.

2

3 **A.** The primary fuel for the Polk Unit One combustion turbine  
4 will be syngas. Syngas is a synthetic fuel which is  
5 produced by feeding fuel into a pressurized and heated  
6 vessel to produce a combustable synthetic gas. Polk Unit  
7 One is designed with the flexibility of using several  
8 different fuel types as feedstock. In fact, one of the DOE  
9 objectives of the project is to demonstrate the flexibility  
10 of this technology utilizing several different types of  
11 coal during the first two years of commercial operation.

12

13 **Q.** How will this flexibility be demonstrated?

14

15 **A.** The first two years of commercial operation have been  
16 designated as a demonstration period for different coal  
17 types to be tested. We will test at least four different  
18 types of coal over that period of time, all of which will  
19 originate from the eastern United States.

20

21 **Q.** Why is this testing being performed?

22

23 **A.** It is a requirement of the cooperative agreement between  
24 Tampa Electric and the U.S. Department of Energy (DOE) in  
25 which over \$142 million in DOE funding is being provided to

1 offset the cost for construction and operation of the  
2 plant. DOE's goal has been to develop technologies which  
3 are not only commercially viable, but which also lead  
4 toward a national energy policy that takes advantage of our  
5 most abundant domestic energy source, coal. America's coal  
6 reserves represent one of the world's most plentiful energy  
7 supplies. Domestic coal is the fuel source responsible for  
8 over half of the production of electricity in the United  
9 States. It is vital that we continue to find ways to  
10 utilize this natural resource in an economical and  
11 environmentally responsible manner.

12  
13 Q. After the demonstration period is over, what types of fuel  
14 will be used in Polk Unit One?

15  
16 A. After the demonstration period, we will evaluate the data  
17 gathered during that period and then determine which fuel  
18 feedstock provides the lowest overall cost. We will also  
19 evaluate western and international sources of coal which  
20 may provide better economic alternatives. Additional  
21 evaluations will be made to determine the most cost-  
22 effective blend of petroleum coke with various coals. At  
23 this point in time, the most cost-effective fuel type is  
24 projected to be a blend predominately of petroleum coke  
25 with a lesser amount of a domestic coal. The ability to

1 gasify a wide variety of fuels directly translates into  
2 economic benefits and cost savings and we will continue to  
3 evaluate the cost-effectiveness of all alternative  
4 feedstocks.

5  
6 Q. What is petroleum coke?

7  
8 A. In the 1930s, a refining process was commercially developed  
9 to break down residual oils into a commercially marketable  
10 product to be used as a solid fuel, known as petroleum  
11 coke. Petroleum coke is a petroleum-derived form of carbon  
12 used as a low-ash, high-heat value fuel. Petroleum coke is  
13 produced as a by-product in oil refineries with coking  
14 capabilities or "cokers." As refineries remove lighter  
15 products (such as gasoline and diesel fuel) from a barrel  
16 of crude oil, the remaining residual fuel becomes thicker  
17 and heavier. This residual fuel is processed by a severe  
18 form of thermal cracking or coking, producing petroleum  
19 coke. Petroleum coke has chemical, physical and handling  
20 properties similar to those of coal which will be used in  
21 Polk Unit One.

22  
23 Petroleum coke is used by cement kilns, paper mills, and  
24 electric generating units as a fuel source. Petroleum  
25 coke, in modified forms, is utilized in making foundry

1 coke, blast furnace coke or calcined for making anodes in  
2 aluminum smelting.

3

4 Q. Is petroleum coke readily available?

5

6 A. Yes. Petroleum coke is being produced at numerous  
7 refineries along the Gulf Coast, Mississippi River and  
8 throughout the Caribbean and South America. In fact, large  
9 price spreads between light and heavy crude and light and  
10 heavy products in the early 1990s enticed several refiners  
11 to invest in cokers. The capital cost and increased  
12 operational expenses of cokers are justified because cokers  
13 offer two benefits to refiners. Refiners can reduce crude  
14 oil cost by running a heavier crude feedstock. Second,  
15 refiners can take advantage of the spread between heavy and  
16 light product prices by producing more light products.  
17 Refiners earn significant returns on their coker  
18 investments when the price spread between heavy and light  
19 crude and heavy and light products outweighs the low value  
20 of petroleum coke. In the mid 1990s, the heavy and light  
21 price spread declined. Nevertheless, refiners generally  
22 have continued to operate cokers at capacity.

23

24 Around 1990, there were approximately 100 refineries with  
25 coking units of various sizes. Since 1992, five additional

23  
24  
25

Around 1990, there were approximately 100 refineries with coking units of various sizes. Since 1992, five additional

1 cokers have come on line and three more are scheduled for  
2 late 1996. The cokers coming on line in the 1995-96 time  
3 frame will substantially increase daily petroleum coke  
4 production.  
5

6 Tampa Electric is currently purchasing petroleum coke for  
7 use in Big Bend 4 and is performing tests in 1996 to burn  
8 petroleum coke in Big Bend 3 and Gannon 4.  
9

10 Q. How has the price of petroleum coke compared to the price  
11 of coal in the past and what trends do you see ahead?  
12

13 A. Historically, the price of petroleum coke has been below  
14 the price of coal. Due to changes in the supply/demand  
15 balance over the last several years, petroleum coke cost  
16 has varied from 0.55 to 1.20 \$/MMBTU while coal would  
17 typically range from 1.20 to 2.00 \$/MMBTU in the U.S. Gulf  
18 Coast.  
19

20 Looking forward, refiners are installing cokers at a rapid  
21 pace which is expected to greatly increase the supply of  
22 petroleum coke. Based on this information, we expect the  
23 price to remain favorable in comparison to the price of  
24 coal for the foreseeable future.  
25

1 Q. Will Polk Unit One have the ability to use a secondary fuel  
2 in the event that syngas is unavailable?  
3

4 A. Yes. Having a secondary fuel source increases the  
5 reliability and availability of the unit. Therefore, Polk  
6 Unit One was designed to include General Electric's model  
7 7F combustion turbine. This state-of-the-art machine has  
8 the demonstrated capability of burning both a primary and  
9 a secondary fuel type. The primary design fuel for the  
10 Polk Unit One is syngas, a gas that can be produced from a  
11 wide variety of coals and petroleum coke as described  
12 earlier. The secondary design fuel selected is No. 2 oil.  
13

14 Q. How was the secondary fuel type selected?  
15

16 A. The choice involved considerations of cost and reliability.  
17 Besides No. 2 oil, natural gas was considered. Natural gas  
18 is commercially available but is subject to cost and  
19 reliability tradeoffs which favor the use of No. 2 oil. In  
20 order to use natural gas as a back up fuel, Tampa Electric  
21 would either have to purchase firm transportation service  
22 from a natural gas pipeline company at a cost not justified  
23 by the relatively small amount of natural gas anticipated  
24 to be needed, or purchase non-firm transportation from the  
25 pipeline at a justifiable cost, but without the assurance

1 of reliability. In contrast, No. 2 oil is transported by  
2 tanker truck, and truck transportation has historically  
3 been reliable for spot orders without prohibitive capacity  
4 or reservation charges. In addition, the IGCC will require  
5 No. 2 oil for start up. A two million gallon tank on site  
6 at Polk will provide the capability for storing an adequate  
7 supply of No. 2 oil which will be readily available for  
8 start up and back up purposes.

9  
10 Q. How does Tampa Electric plan to transport fuel to the Polk  
11 Power Plant site?

12  
13 A. Coal for the Polk Unit One will be transported by truck  
14 from our Big Bend Station. Big Bend Station has adequate  
15 ground storage and unloading equipment to accommodate the  
16 additional requirements of the Polk Unit's inventory. This  
17 will allow Polk to have access to water deliveries of coal,  
18 which over time have proven to be Tampa Electric's most  
19 economic coal transportation alternative. Water delivery  
20 has also provided for a less expensive design of Polk Unit  
21 One by eliminating the requirement for unit train unloading  
22 equipment and large coal storage piles.

23  
24 The trucking will be supplied on a competitively bid basis.  
25 Tampa Electric issued a Request for Proposal ("RFP") to 22

1 bidders in December 1994 for a transportation contract to  
2 deliver coal to the Polk Power Station site from Big Bend  
3 Station. Bid proposals were due in February 1995 and 11  
4 companies responded. The proposals were evaluated and on  
5 August 24, 1995 a contract was awarded to CTL Distribution,  
6 Inc.

7  
8 Our answer to Interrogatory No. 17 from Staff's Second Set  
9 of interrogatories to TECO in Docket No. 950379-EI  
10 (included in my Exhibit) also addresses the evaluation in  
11 more detail.

12  
13 Petroleum coke, whether domestic or imported, will be  
14 delivered to Electro-Coal by waterborne transportation.  
15 The delivery from Electro-Coal to the Polk site will be  
16 consistent with that of coal.

17  
18 No. 2 oil will be delivered by truck to the Polk Power  
19 Station from wholesale distributors in the Tampa Bay area.  
20

21 Q. What alternatives did Tampa Electric consider other than  
22 bringing coal to the Big Bend Station by water, then  
23 trucking it to the Polk Power Plant Station?  
24

25 A. An evaluation was conducted on the alternatives available



1 for delivery of coal to the Polk Power Station. This  
2 evaluation addressed strategic considerations, economic  
3 factors, and equipment alternatives. Three options were  
4 evaluated. First, unit train delivery of coal from the  
5 mine to the Polk site. Second, water delivery of coal by  
6 barge to Big Bend Station with subsequent loading of coal  
7 to rail cars for movement to the Polk site. Third,  
8 bringing coal to Big Bend Station by water, then trucking  
9 it to Polk site. Implementation of either the second or  
10 third option of delivering coal to Big Bend Station by  
11 water required a modification to the Big Bend site. Of the  
12 three options evaluated, we concluded to bring fuel to the  
13 Big Bend Station by water, then trucking it to the Polk  
14 Power Plant site provided Tampa Electric the best overall  
15 alternative taking all factors into consideration.

16  
17 Our answer to Interrogatory No. 17 from Staff's Second Set  
18 of interrogatories to TECO in Docket No. 950379-EI  
19 (included in my Exhibit) also addresses the evaluation in  
20 more detail.

21  
22 **Fuel Inventory**

23 Q. Please describe the transportation path of coal bound for  
24 Polk Unit One.

25

- 1 | **A.** Coal will be purchased either in barges or railcars bound  
2 | for barges on the Ohio or Mississippi rivers. The coal  
3 | will then be transported to the Electro-Coal Transfer  
4 | Terminal facility in Davant, Louisiana where it will be  
5 | transloaded onto ocean-going barges. The coal will be  
6 | delivered to Tampa Electric's Big Bend Station and stored  
7 | on the coal yard. Trucks will be used to haul coal from  
8 | Big Bend to Polk Unit One's storage silos.  
9 |
- 10 | **Q.** When will Tampa Electric take title to the coal, thereby  
11 | incorporating it into its inventory?  
12 |
- 13 | **A.** In general, coal will be purchased at the mine facilities  
14 | or at the dock facilities when it is loaded into the  
15 | railcars or barges. The coal then remains in our inventory  
16 | until it is consumed.  
17 |
- 18 | **Q.** How many days of fuel will be required in Polk Unit One's  
19 | inventory?  
20 |
- 21 | **A.** To provide the unit with the necessary reliability of  
22 | supply, we will need to maintain approximately 75 days of  
23 | coal use and 5 days of oil use in our total inventory  
24 | during the first year of operation.  
25 |

1 Q. What are some of the considerations that go into  
2 determining the quantity of fuel that must be maintained in  
3 inventory to provide a reliable fuel supply?  
4

5 A. Several factors go into the determination of an adequate  
6 fuel inventory. Some of these factors included the  
7 delivery time from the mine; potential delays in scheduled  
8 loadings due to mine or production problems such as  
9 strikes; weather conditions; equipment breakdowns, etc;  
10 abnormal river conditions which can cause delays such as  
11 flooding; droughts; ice formation; lock maintenance,  
12 affecting river traffic; etc.; and trucking delays which  
13 could be caused by road maintenance, equipment outages and  
14 strikes. These factors, combined with operating  
15 considerations and transportation constraints, lead us to  
16 the inventory projections I have stated.  
17

18 **Fuel Forecasting**

19 Q. Please describe the methodology Tampa Electric uses to  
20 forecast the prices of its various fuels.  
21

22 A. Tampa Electric monitors the prices of all fuels on a  
23 regular basis. The prices of oil, coal, petroleum coke and  
24 natural gas are tracked through numerous periodicals,  
25 actual buying experience, and through market information

1 obtained from supply representatives. A forecast of  
2 expected fuel prices is developed annually to support the  
3 company's planning process. The development of the  
4 forecast includes a review of historical fuel prices  
5 (actual and previous projections) compared with new  
6 projections.

7  
8 The source of actual and forecast data for the purpose of  
9 monitoring pricing is obtained by carefully reviewing price  
10 forecasts obtained by various consultants and agencies  
11 including Energy Information Administration, American Gas  
12 Association, Cambridge Energy Research Associates, Resource  
13 Data International, and Groppe, Long and Littel. Coal,  
14 oil, and natural gas pricing publications and periodicals  
15 include: *Coal Outlook*, *Inside FERC*, *Natural Gas Week*,  
16 *Platt's Oilgram*, and *Oil and Gas Journal*.

17  
18 Q. Has this methodology produced reasonable forecasts over the  
19 last several years?

20  
21 A. Yes. Our forecasts have been reasonable. We have  
22 continually studied the natural gas, oil, petroleum coke  
23 and coal markets thoroughly to best predict the trends that  
24 the prices and availabilities of those individual markets  
25 would follow. We have retained consultants who forecast

1 these trends and used their information to develop our own  
2 forecasts. We have regularly compared the reasonableness  
3 of our forecasts with those of others. Typically, our  
4 forecasts are bounded on both the high and low side by  
5 forecasts of consultants.  
6

7 Q. Did the Commission review Tampa Electric's selection of  
8 syngas as the primary fuel source for Polk Unit One?  
9

10 A. Yes. The initial decision to use syngas instead of natural  
11 gas for Polk Unit One was thoroughly reviewed by this  
12 Commission and approved in the certification proceeding.  
13 Moreover, DOE committed and has invested over \$142 million  
14 based on Tampa Electric's commitment to construct and  
15 operate test a gasification facility at the Polk Power  
16 Station. The Commission's need determination order for  
17 Polk Unit One included a condition that Tampa Electric  
18 receive the DOE funding for installing the gasification  
19 technology.  
20

21 Q. Does the Fuels Department of Tampa Electric provide the  
22 price and availability assumptions for natural gas used in  
23 Tampa Electric's planning process?  
24

25 A. Yes. We monitor the trends and prices in the natural gas

1 industry on an ongoing basis. Changes in that industry,  
2 both transportation and markets, are incorporated into the  
3 forecast assumptions which are supplied to the Resource  
4 Planning Department on a regular basis. In addition to  
5 providing forecasts of price, we also provide forecasts of  
6 gas availability, particularly of the interruptible supply  
7 of gas. This aspect of the forecast is a key factor to the  
8 planning effort due to price differentials between coal and  
9 natural gas.

10  
11 Q. Are there any costs that are considered to be unique to the  
12 purchase of natural gas, in contrast to other fuels?

13  
14 A. Yes. Unlike other conventional fuels, natural gas has a  
15 unique cost element that has to be reckoned with when  
16 determining primary fuel type for new generation. That  
17 unique element is the transportation capacity charge for  
18 firm service. Unlike other fuels, for which transportation  
19 has historically been available on a spot or long term  
20 basis without a capacity charge, natural gas to be  
21 transported on a firm basis, requires payments of a  
22 capacity charge. The pipeline must be paid regardless of  
23 demand fluctuations. Accordingly pipeline companies,  
24 unlike other transportation companies, impose a take or pay  
25 demand charge to cover their fixed costs.

1 This means that natural gas, to maximize competitiveness as  
2 a generating fuel, must be used continuously for high load  
3 factor generation. The competitiveness of gas is increased  
4 further if, in addition to base load units, the utility's  
5 system has additional gas-fired capacity which can absorb  
6 gas supplies which are made available when the base load  
7 units can not use the fuel.

8  
9 **Q.** Does Tampa Electric's fuel mix present any special economic  
10 obstacles to adding natural gas-fired capacity?

11  
12 **A.** Yes. Unlike other electric utilities in Florida, Tampa  
13 Electric does not represent a good prospect for new natural  
14 gas-fired combined cycle capacity. First, unlike other  
15 electric utilities, Tampa Electric has no oil-fired  
16 generation that is used as base load capacity. Instead,  
17 all of Tampa Electric's base load capacity is fired by  
18 lower priced coal. Under fuel prices currently projected,  
19 other utilities can install natural gas as new base load  
20 capacity, because a new gas-fired plant dispatches earlier  
21 than existing oil-fired capacity. That would not occur on  
22 Tampa Electric's system, which has no oil-fired capacity  
23 operating in a base load mode. Instead, for the  
24 foreseeable future any new gas-fired generation would  
25 dispatch as a peaking or intermediate-load unit on Tampa

1 Electric's system. In addition, Tampa Electric does not  
2 have an outlet to absorb excess firm natural gas when that  
3 gas could not be used in its intended units. Accordingly,  
4 Tampa Electric is not a prime candidate for new natural  
5 gas-fired combined cycle capacity under current pipeline  
6 transportation costs and our system design based on the  
7 uneconomic take or pay nature of firm natural gas  
8 transportation.

9  
10 Q. How reliable is natural gas as a fuel when purchased on an  
11 interruptible basis?

12  
13 A. The answer to this question varies and is mainly tied to  
14 the availability of transportation or pipeline capacity.  
15 When firm transportation customers are not using their  
16 capacity, this capacity becomes available on an  
17 interruptible basis. When transportation capacity is  
18 plentiful compared to demand, interruptions are fewer.  
19 When demand is high relative to transportation capacity,  
20 interruptions are more likely to occur. Of particular  
21 concern is the fact that Florida's natural gas use, to a  
22 significant degree, consists of electrical generation.  
23 This fact makes interruptible transportation least  
24 available at the very times we would require it most due to  
25 the coincidental nature of utility peaks.



1 In 1991, when we were planning for Polk Unit One, the gas  
2 transportation business was very different from what it is  
3 today. Florida Gas Transmission (FGT) provided most of the  
4 gas supply services on a bundled basis (as the effects of  
5 FERC Order 636 had yet to be implemented) and interruptible  
6 gas was often not available except during off-peak periods.  
7 Additionally, neither the modifications to the St.  
8 Petersburg lateral, which serves the West Coast of Florida,  
9 nor the FGT Phase III expansion was complete. This created  
10 a long history of difficulties in delivering significant  
11 quantities of gas to West Florida.

12  
13 Q. How has the natural gas business varied over time?

14  
15 A. Today, the picture has changed with the advent of  
16 alternative delivery point transportation (capacity  
17 exchanges) as well as the significant upgrades to the pipe  
18 line system in West Florida. However, it remains difficult  
19 to purchase natural gas transportation for electrical  
20 generation during peak periods on an interruptible basis  
21 (without a firm gas transportation contract).

22  
23 In addition, the winter of 1995-1996 has thrown the natural  
24 gas supply/demand picture out of balance causing wide  
25 variations of price over the last several months. Prices

1 | quoted for gas inputs into FGT - Zone 3 increased from  
2 | \$1.51/MMBTU in February of 1995 to ~~\$2.34~~<sup>5.34</sup>/MMBTU in February,  
3 | 1996, an increase of ~~55%~~<sup>254%</sup> over just one year. Although this  
4 | drastic increase is not necessarily an indicator of future  
5 | prices, it illustrates how volatile the natural gas market  
6 | can be and has been over time.  
7 |

#### 8 | Environmental Land Requirements

9 | Q. What is the size of the Polk Power Station site?

10 |  
11 | A. The Polk Power Station site consists of approximately 4,348  
12 | acres.  
13 |

14 | Q. Will the Polk Power Station site have any environmental  
15 | mitigation requirement?  
16 |

17 | A. Yes. The Polk Power Station environmental mitigation  
18 | requirements are associated with both upland and wetland  
19 | areas. The Department of Environmental Protection, Bureau  
20 | of Mine Reclamation requirements associated with the site  
21 | and the construction of the cooling reservoir called for  
22 | the reclamation of nearly 800 acres of wetlands. In  
23 | addition to the wetland acres, the Bureau of Mine  
24 | Reclamation standards call for two acres of supporting  
25 | upland drainage area for each acre of wetland created to

1 ensure the viability of the wetlands. This one factor  
2 alone accounts for over 2300 acres of the Polk Power  
3 Station site.  
4

5 Q. What other factors were considered when developing the Polk  
6 Power Station site requirements?  
7

8 A. In addition to the mitigation requirements listed above, a  
9 section of this land is required for Polk Unit One for its  
10 power block, gasification plant, fuel handling and storage  
11 facilities, transmission and switching station facilities  
12 and other related plant facilities. A significant portion  
13 of the land is required for the cooling reservoir and  
14 buffer areas. The plant site is also planned to be used to  
15 support the development of future units in Tampa Electric's  
16 generation expansion plan.  
17

18 Q. Please summarize your testimony.  
19

20 A. My testimony provides details regarding the purchase and  
21 delivery of fuel supplies that will be used to operate Polk  
22 Unit One. This includes the various analyses that were  
23 performed in order to select the appropriate fuel types as  
24 well as the logistics of getting the fuel to the plant and  
25 storing it there. We believe that our fuel supply choices

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25

have been reasonable and will provide a stable supply of  
reasonably priced fuel with which to operate our new unit.  
My testimony also addressed environmental land requirements  
for Polk Power Station.

Q. Does this conclude your testimony?

A. Yes it does.

1                   **CHAIRMAN CLARK:** And we probably should go  
2 ahead and identify his exhibit.

3                   **MR. LONG:** All right. We can do that now.

4                   **Q**        **(By Mr. Long)** Mr. Smith, did you also  
5 prepare the exhibits designated HWS-1?

6                   **A**        They were prepared under my direction and  
7 supervision, yes.

8                   **Q**        Would you summarize your testimony?

9                   **CHAIRMAN CLARK:** Mr. Long, we'll identify  
10 them as Exhibit 11.

11                   **MR. LONG:** I apologize, Chairman.

12                   **CHAIRMAN CLARK:** That's all right.

13                   (Exhibit No. 11 marked for identification.)

14                   **A**        Tampa Electric's fuel related decisions  
15 concerning the Polk IGCC unit have been reasonable and  
16 prudent. The standard to be applied in confirming the  
17 reasonableness of our fuel related decisions is  
18 whether there was a rational basis for those decisions  
19 given what was known at the time.

20                   Under this standard the prudence of our  
21 decisions is clear. We're confident in the  
22 reasonableness of the fuel price forecast which we use  
23 to evaluate the ongoing effectiveness of the IGCC  
24 project. Tampa Electric monitors the prices of all  
25 fuels on a regular basis. The Company develops its

1 own forecast of expected fuel prices annually to  
2 support its planning process. External forecast of  
3 fuel prices from various consultants such as the  
4 Energy Information Administration, the American Gas  
5 Association, Cambridge Energy Research Associates,  
6 Resource Data International and Groppe, Long & Littell  
7 are consulted on a regular basis. Various periodicals  
8 are also routinely consulted. Our forecasts are  
9 bounded on both the high and the low side of the  
10 forecast of external forecasters. Our forecasts are  
11 consistent with those of many other credible  
12 forecasters including other Florida utilities who  
13 expect both an upward trend in natural gas prices, and  
14 a widening gap between coal and natural gas prices.  
15 As Mr. Black will explain, we've designed our IGCC  
16 unit to burn two fuels: Syngas, produced by the  
17 gasifier portion of the unit and No. 2 oil as a backup  
18 fuel.

19           While we considered natural gas as a backup  
20 fuel, we eliminated that option on the basis of  
21 technical feasibility and reliability. Since our  
22 power block could be configured to burn only two  
23 fuels, we chose No. 2 oil as the backup fuel because  
24 of its historic availability without prohibitive  
25 capacity or reservation charges. A firm natural gas

1 supply would not have been a cost-effective backup  
2 since the relatively small amount of gas needed would  
3 not have justified the cost of firm transportation.  
4 By the same token, as-available gas would not have  
5 provided the necessary degree of reliability since  
6 high demand would make it unavailable during  
7 significant portions of the year.

8           As Mr. Black also explains in his testimony,  
9 the Texaco gasifier technology employed at the Polk  
10 site offers a wide range of flexibility with regard to  
11 the feedstocks which can be used to produce the  
12 primary fuel, syngas. The most cost-effective feed  
13 stock currently is a blend of coal and petroleum coke.  
14 I've distributed a sample of petroleum coke. As you  
15 can see, the two are quite similar.

16           Petroleum coke is a by-product of the  
17 refining industry and is commercially available at  
18 prices significantly below coal prices. Tampa  
19 Electric and other utilities currently use petroleum  
20 coke in their steam boilers. Therefore, from a supply  
21 and cost perspective, we're confident that the use of  
22 a blend of coal and petroleum coke is a reliably  
23 available feedstock and will result in significant  
24 cost savings.

25           Finally, on somewhat a different topic, the

1 environmental factors involved in siting an electrical  
2 generation facility are substantial.

3 The environmental considerations for Polk  
4 Unit One clearly establish the need for the size of  
5 the site acquired.

6 Q (By Mr. Long) Thank you. Does that  
7 conclude your summary?

8 A Yes, it does.

9 CHAIRMAN CLARK: Thank you, Mr. Smith.  
10 Mr. McWhirter.

11 CROSS EXAMINATION

12 BY MR. McWHIRTER:

13 Q Mr. Smith, on Page 3 of your testimony you  
14 refer to a grant from the Department of Energy in the  
15 amount of \$142 million. How much of that grant goes  
16 to capital cost, and how much of it goes to O&M costs?

17 A Witness Black in this case is the more  
18 qualified witness to answer that. It's my  
19 understanding that the split is roughly around  
20 120 million for capital and 20 million towards fuel.  
21 In round numbers.

22 Q 20 million for the fuel that you will  
23 purchase, is that the deal?

24 A Yes, sir.

25 Q And it doesn't defer O&M expenses. It has



1 to do with trying different kind of fuels. Is that  
2 the tenor of your testimony?

3 A The 20 million piece is either rolled in in  
4 the O&M from the DOE perspective along with other O&M  
5 expenses -- and again, Witness Black is really the  
6 witness in this case that probably can best answer  
7 that for you. I don't have a real clear understanding  
8 of how those costs are going to be allocated against  
9 the project.

10 Q All right. I'll defer that question to  
11 Mr. Black.

12 You're principally a fuel witness, and I  
13 notice the blend of fuels that you use has changed  
14 from the early studies when a certificate of need was  
15 requested and the current scenario. Is that a correct  
16 understanding of what has happened?

17 A In the need hearing process we used the fuel  
18 forecasts that we provided to the planning group, and  
19 that included coal and oil and natural gas. In the  
20 first couple of years of design we learned about, and  
21 became more familiar with, the ability of the  
22 gasification process to use petroleum coke is a fuel  
23 source feedstock into that gasification system. And  
24 based on that information, we started to provide  
25 forecasts of petroleum coke prices to our planning

1 group for use in their planning analysis work.

2 Q Once again, if you want to defer this to  
3 Mr. Black, is the DOE grant designed to help you  
4 explore new fuel concepts? Is that what the  
5 \$20 million is all about?

6 A I really can't answer that question. I  
7 don't know.

8 Q Are these things that you put on our desks,  
9 are those actual pet coke or is that a plastic  
10 replication of pet coke?

11 A That's actual petroleum coke.

12 Q That's it itself, and it doesn't get your  
13 hands dirty at all.

14 A The one thing that we did to this sample  
15 that I passed out so that you could view it was put a  
16 little bit of shellack on it so that it wouldn't get  
17 you dusty if you picked it up.

18 Q I see. I understand that petroleum coke is  
19 considered to be a very danger hazardous waste; is  
20 that understanding incorrect?

21 A I've never had that understanding. And  
22 don't know where you would have gotten that from, no,  
23 sir.

24 Q Well, it's not important where I got it  
25 from. You're saying my understanding is incorrect and

1 it's not a hazardous waste?

2 A That is not my understanding, no, sir.

3 Q All right. Do you have to obtain clearance  
4 from the Department of Pollution Control and other  
5 environmental groups with respect to the  
6 transportation of petroleum coke across Tampa Bay?

7 A Not to my knowledge, no, sir.

8 Q All right. To your knowledge, has your  
9 company done anything to get permits for the  
10 transportation of petroleum coke?

11 A As it related to the Polk unit, we did  
12 include in the site certification application the  
13 consideration that we would be using trucks to haul  
14 petroleum coke as well as coal from our Big Bend  
15 station to the Polk power station. But other than  
16 that I'm not aware of any permits or authorizations  
17 that we've had to receive for any transportation of  
18 petroleum coke.

19 Q Of the current proposed blend of fuel that  
20 you are going to use in this plant, what percentage of  
21 the fuel would be purchased from Tampa Electric  
22 Company's other subsidiaries and what percentage of  
23 the fuel will be purchased in the open market?

24 A The current plan is for us to purchase all  
25 of the coal in the open market. To the extent that a

1 TECO Energy subsidiary company were to provide a  
2 competitive bid which was the lowest overall evaluated  
3 bid, then there would be the possibility for them to  
4 provide us fuel under that scenario.

5 Q On Page 6 of your testimony you refer to  
6 Electro-Coal Company. Is that a subsidiary of TECO?

7 A Yes, sir.

8 Q And that's your barge transportation  
9 company?

10 A Electro-Coal -- and I haven't found your  
11 reference to Page 6 yet, but Electro-Coal is the  
12 transloading facility located in Davant, Louisiana.  
13 It is not a transportation company per se. It's a  
14 storage and transfer facility located on the southern  
15 portion of the Mississippi River.

16 Q You're right. It's in there somewhere, but  
17 it isn't on Page 6. I just looked.

18 And when you get the petroleum coke it will  
19 be transported through this site and then put on your  
20 barges at the Electro-Coal site?

21 A That's one of the alternatives that we have  
22 available to us.

23 We are currently burning petroleum coke in  
24 our facilities and some of the coal has come through  
25 Electro-Coal. Other portions of the coal have been

1 delivered directly from the refineries to Tampa  
2 Electric Company. And I think both of those options  
3 would be available for us again on a lowest cost  
4 evaluated basis moving forward into the future.

5 Q When it comes through Electro-Coal, does the  
6 title pass to Tampa Electric from Electro-Coal or does  
7 it just perform a transportation and holding service?

8 A The title passage is negotiated on an  
9 agreement-by-agreement basis, and typically Tampa  
10 Electric takes title to most of its solid fuels at the  
11 location in which we pick up the delivery. So in  
12 other words, in this case it would be at the refinery.  
13 There could be cases where we would buy petroleum coke  
14 that was owned by someone else and might be sitting on  
15 the piles of Electro-Coal, and if that were the case  
16 the title would transfer at Electro-Coal. The  
17 scenario also exists where a potential supplier could  
18 supply the petroleum coke directly to the facility and  
19 handle all of the transportation charges themselves.  
20 And in that case, it's likely that the title would  
21 transfer at Big Bend station.

22 Q But in all instances your program is going  
23 to be to bid for the pet coke in the open market and  
24 the TECO fuel subsidiaries will be bidding just like  
25 other suppliers of fuel; is that correct?

1           A     Yes, sir. As it refers to petroleum coke  
2 it's not likely at this point, from our view, that any  
3 of the TECO Energy affiliate companies or subsidiary  
4 companies would be bidding on any of the petroleum  
5 coke supply.

6           Q     And you bid -- the coal that you will burn  
7 in this unit will be bid in the same fashion; it will  
8 not be purchased directly from TECO subsidiaries?

9           A     That's correct.

10          Q     Now, I don't know whether you're  
11 sufficiently familiar with this to discuss it, and if  
12 you're not, I'll defer it to Mr. Black. But during  
13 the redirect component of the testimony Mr. Hernandez  
14 sponsored Exhibit No. 10, which had various  
15 cost-effectiveness studies using different kinds of  
16 fuels. Are you familiar with that exhibit and could  
17 you answer questions about it?

18          A     I'm not familiar with that exhibit. If I  
19 were to a copy of it, I might be able to tell you  
20 whether or not I could answer questions about it.  
21 (Hands document to witness.)

22                     After reviewing it, I'd say it's pretty  
23 unlikely I'm going to be able to answer any of  
24 questions, but if you'd like to try, I'll be happy to  
25 attempt to answer them.

1           Q     Well, fuel comes into play and that's why I  
2 thought you might be an appropriate person to discuss  
3 this. But there's a point which I call the crossover  
4 point, and that's the point at which the capital  
5 carrying costs are offset by the fuel cost savings.  
6 And it's not until you reach the crossover point, as I  
7 call it, that there's a real benefit to customers as a  
8 result of the IGCC unit. Now, that's my analysis and  
9 somebody else will probably correct that on redirect  
10 examination, but for the purposes of these questions  
11 assume that. And if you look at the 1992  
12 cost-effectiveness study, the square blocks with the  
13 line running through them, this deals with a  
14 comparison between the Polk unit and the combined  
15 cycle unit, and it shows that the crossover point  
16 would be in the year 2009, if I understand this  
17 exhibit correctly. Is that your understanding of it  
18 as well?

19           A     I don't think that I have that much  
20 understanding, so I think I'd be stretching myself too  
21 far to try to --

22           Q     Okay. I'll defer these to Mr. Black when he  
23 comes on the stand. Thank you very much. I tender  
24 the witness.

25

## CROSS EXAMINATION

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25

BY MR. HOWE:

Q Good afternoon, Mr. Smith. Just a couple of questions.

One was, did I understand you when you first took the stand to say that the combustion turbine portion of the IGCC can be configured to accept two of three different fuel types?

A Only two.

Q Only two. And for purposes of the way you were describing it, do I understand correctly that distillate oil, synthesis gas and natural gas would be three different types?

A That's correct.

Q And the IGCC combustion turbine will not be able to run on natural gas; is that correct? As configured in the IGCC -- the combustion turbine in the IGCC will not be configured to run on natural gas?

A That's correct.

Q If it can't run on natural gas, how do you compare the power block of the IGCC as if it did run on natural gas?

A Mr. Black is probably the best person to get into the design of the facilities again. My understanding of that is very simplistic in that the



1 fuel introduction system has to be changed in order to  
2 be able to -- at least one of the things that has to  
3 be done to the facility in order for it to accommodate  
4 a different fuel type. And that although that has an  
5 expense associated with it and a significant downtime,  
6 that can be accomplished and the unit can be converted  
7 to burn natural gas.

8 Q The only other questions I have relate to  
9 Page 19 of your prefiled testimony. And there I  
10 believe you're describing differences between the  
11 natural gas supply in 1991 and the way it is today; is  
12 that correct?

13 A That's correct.

14 Q Mr. Smith, I'm looking at a document  
15 entitled "Tampa Electric Company Polk Unit 1 need  
16 determination study, Docket No. 910883-EI." It  
17 apparently was a submittal by the company in the 1991  
18 need termination proceeding, and I'd like your  
19 response to this sentence that appears on Page 11 of  
20 that study. I don't think it needs to be distributed  
21 at all. The sentence reads --

22 MR. LONG: Excuse me. Chairman, could the  
23 witness take a look at the document? Could I examine  
24 it before it's used for questioning?

25 MR. HOWE: I have no problem with that.

1 Q (By Mr. Howe) Mr. Smith, do you recognize  
2 this document?

3 A I don't recall seeing it, no.

4 Q Do you know whether or not it was a  
5 submittal of a company in the 1991 need determination  
6 filing?

7 A No, I do not.

8 Q Then I'll just phrase this as a question and  
9 you tell me whether you believe it's true or false.  
10 Referring to the Polk power plant site. The Polk  
11 power plant site is located near the FGT/Hardee power  
12 station natural gas lateral and will be served by that  
13 lateral." Would that have been a true statement in  
14 1991?

15 A In 1991 we did have the anticipation  
16 mistakenly that we would be able to use three fuels in  
17 the 7F machine that General Electric was manufacturing  
18 and, therefore, our initial thoughts, particularly  
19 while we had the 150 megawatt gas turbine coming on  
20 line in 1995, was to take advantage of the benefit  
21 that natural gas would have provided over No. 2 oil  
22 when it was available.

23 It was later on in the process that we  
24 learned that the combustion turbine could only accept  
25 two different fuels and at that point we were forced

1 to basically make a decision as to which two were the  
2 most reasonable fuels to use.

3 The syngas fuel was obviously going to be  
4 the baseload fuel, and so that was a given. And then  
5 the backup fuel was the fuel in which we had a make a  
6 decision on. And the decision was to use No. 2 oil,  
7 based on the fact that when you needed backup fuel it  
8 was going to be difficult to be faced with a  
9 possibility of not being able to acquire interruptible  
10 natural gas at the particular time when you needed it.  
11 So that's the process by which we got to the point  
12 where we used the two fuels of syngas and No. 2 oil.

13 Q Would that same explanation apply to this  
14 sentence "Natural gas will be delivered to the site by  
15 pipeline from a connection to the Florida Gas  
16 Transmission, Sarasota Bulk Transmission lateral which  
17 runs through a portion of the site."

18 A Again, those were the initial plans that we  
19 had, was to bring natural gas to the facility and take  
20 advantage of those economics when they were available  
21 in lieu of using No. 2 oil.

22 Q Did Tampa Electric discover that they could  
23 not use natural gas before or after the Commission  
24 issued the need determination order on March 2nd,  
25 1992?

1           **A**     All I can speak for is myself and I was not  
2 aware of that until after that need order was issued.

3           **MR. HOWE:** Thank you very much, Mr. Smith.

4           **CHAIRMAN CLARK:** Mr. Smith, could you  
5 clarify something for me? I want to understand  
6 exactly what you're saying when you're saying only  
7 three fuels, three fuels and then two.

8           I want to understand, you had the option of  
9 choosing from three fuels to select your two fuels?

10          **WITNESS SMITH:** That's correct.

11          **CHAIRMAN CLARK:** You could have chosen  
12 natural gas as opposed to No. 2 oil, but you could  
13 only have two fuels.

14          **WITNESS SMITH:** Let me try to elaborate just  
15 a little bit and, hopefully, it will answer your  
16 question.

17                 No. 2 oil is typically more expensive than  
18 natural gas is, and, therefore, natural gas provides  
19 some cost benefit, if you can use it in a combustion  
20 turbine rather than No. 2 oil. The nature of buying  
21 natural gas is that to guarantee with some degree of  
22 certainty that you're going to be able to receive it  
23 you have to have --

24          **CHAIRMAN CLARK:** You covered that in your  
25 direct testimony. I guess I'm not being clear on what

1 I'm asking.

2 In 1991 you apparently thought you could  
3 fuel it by three sources. Would that be at the same  
4 time -- you could configure it so you had the option  
5 of using three sources, or -- I guess my question is  
6 was there a point in time you had to chose between two  
7 sources out of the three? Or in 1991 did you think  
8 you wouldn't have to chose and you could use all three  
9 sources as a fuel source?

10 **WITNESS SMITH:** In 1991, at least I was  
11 under the impression, that we would be able to use all  
12 three fuels at the site. Not necessarily at the same  
13 time or in blends with each other, but to the extent  
14 that syngas was available, we would have used syngas  
15 because it would have been the cheapest fuel. If  
16 natural gas would have been available and syngas would  
17 not, then we would have used natural gas. And to the  
18 extent that neither of the two fuels were available,  
19 we would have No. 2 oil as a backup fuel.

20 **CHAIRMAN CLARK:** That seems to me to be a  
21 fairly significant misunderstanding. I guess it  
22 troubles me that you, or someone at Tampa Electric,  
23 wouldn't have known that.

24 **WITNESS SMITH:** Again, there probably was  
25 someone at Tampa Electric that did. The reason I

1 don't think it's very significant is the fact that the  
2 syngas facility is expected to be available an  
3 extremely high percentage of time, and that the amount  
4 of No. 2 oil or natural gas that is planned on being  
5 used in this facility is extremely small as a  
6 percentage of the total operation of the facility.

7 **CHAIRMAN CLARK:** Okay.

8 **WITNESS SMITH:** There may be times when we  
9 don't use much of these fuels at all in a given year.

10 **CHAIRMAN CLARK:** The likelihood of you  
11 having to use the alternative was so small that a  
12 significant variation in the two prices would not have  
13 been of concern to you.

14 **WITNESS SMITH:** That's correct.

15 **CHAIRMAN CLARK:** Okay. Staff.

16 **CROSS EXAMINATION**

17 **BY MS. ERSTLING:**

18 **Q** Afternoon, Mr. Smith. Early you mentioned  
19 that you were Director of Energy Supplies Services.  
20 Does that differ than the former title of Director of  
21 Fuels and Environmental in any manner?

22 **A** Yes, it does.

23 **Q** Would you please explain that briefly?

24 **A** Effective July 1st of this year I was given  
25 a new title that includes both the fuels and

1 environmental departments, as well as some  
2 responsibilities in the Energy Supply Department that  
3 includes some engineering service provided to the  
4 power generating facilities.

5 Q Do any of these responsibilities extend to  
6 TECO Power Services as well?

7 A No.

8 Q Has the price of natural gas fluctuated up  
9 and down over the last five to ten years?

10 A Yes.

11 Q Would you agree that the price of natural  
12 gas is expected to continue to be dynamic?

13 A Yes.

14 Q Isn't it a fact that all of TECO's natural  
15 gas price forecasts have shown only upward trends and  
16 have not reflected any of the downward trends?

17 A Yes, and I'd like to clarify a little bit on  
18 that.

19 Q Okay.

20 A Gas is a very volatile commodity, and when  
21 Tampa Electric, as well as most other forecasters that  
22 I'm aware of, forecast the prices of natural gas they  
23 typically forecast long-term trends and do not attempt  
24 to try to forecast the peaks and valleys of those  
25 commodities as that commodity moves forward through

1 time.

2 MS. ERSTLING: Chairman Clark, I would like  
3 the composite exhibit for Witness Smith identified for  
4 the record.

5 Q (By Ms. Erstling) Have you received a copy  
6 of this?

7 A Yes, I have.

8 CHAIRMAN CLARK: The document entitled,  
9 "Staff Composite Exhibit for Hugh W. Smith," will be  
10 identified as Exhibit 12.

11 (Exhibit No. 12 marked for identification.)

12 Q (By Ms. Erstling) Would you please turn  
13 to the Bate stamp Page 14, and that's in the lower  
14 right-hand corner of the composite exhibit. And would  
15 you please identify that exhibit.

16 A Is it a two-page exhibit or a one-page  
17 exhibit?

18 Q It is a two-page exhibit, 14 and 15?

19 A The exhibit looks to be a letter that's  
20 addressed to Mark Senior in the Fuels Department at  
21 Tampa Electric Company, from Richard Sitton, who is an  
22 employee of Groppe, Long & Littell, a consulting firm.

23 Q That letter is dated April 3rd, 1992,  
24 correct?

25 A That's correct. And there's an attachment



1 in this exhibit of one page labeled, "Table 3," so  
2 this looks like an excerpt of a potential document  
3 that looks to be also authored by Groppe, Long &  
4 Littell.

5 Q Does Tampa Electric use the firm of Groppe,  
6 Long & Littell as their primary source in fuel  
7 forecasts?

8 A We do not today, no. In the past they have  
9 been a significant input to some of the forecasts that  
10 we have used.

11 Q Were they a significant input in the year  
12 1992?

13 A We used the inputs from Groppe, Long &  
14 Littell as well as other consulting firms in 1992,  
15 yes.

16 Q Yes, you used others as well, but were they  
17 your primary source?

18 A I wouldn't describe them as a primary  
19 source, no.

20 Q Hasn't Groppe, Long & Littell traditionally  
21 forecast higher prices for natural gas than other fuel  
22 forecasters?

23 A I think that's generally correct, yes.

24 Q Would you look to the middle of the first  
25 paragraph where it begins with the words "As you

1 know," and would you just read those four lines?

2 A "As you know, the continuing trend in  
3 residual fuel oil markets is declining consumption as  
4 a growing natural gas supply displaces residual fuel  
5 oil from under boilers in most parts of the world."

6 Q Go on, just the next line, please.

7 A "Our forecast decline in natural gas supply  
8 in the United States is expected to reverse that trend  
9 as electric utilities and industrial users scramble to  
10 replace declining natural gas supplies."

11 Q Has there been a "scramble," quote, to  
12 replace declining gas supplies in the years 1992  
13 through 1995?

14 A The word "scramble," is a word that I  
15 probably would not use, but drilling activity, and  
16 activity in the area of exploration, particularly in  
17 the Gulf of Mexico, has definitely increased since  
18 1992, yes.

19 Q But there was no declining supply of gas in  
20 the years of 1992 through 1995. Would that be a  
21 correct statement?

22 A No, that would not. There has been a  
23 declining supply of gas throughout that time period.

24 CHAIRMAN CLARK: Mr. Smith, let me ask you  
25 to look at that sentence. I think it doesn't refer at

1 all to producers scrambling; it's people using it to  
2 scramble to replace it.

3           **WITNESS SMITH:** I'm sorry. Let me try that  
4 again.

5           **CHAIRMAN CLARK:** I guess that would be  
6 people like you.

7           **WITNESS SMITH:** I believe that's correct and  
8 I answered that previous question incorrectly. Was  
9 your question has there been a scramble by electric  
10 utilities and industrial users?

11           **Q**        **(By Ms. Erstling)** Yes.

12           **A**        I think that industrial users and electric  
13 utilities have continued to buy supplies of natural  
14 gas. It's not something that I would describe as a  
15 scramble, no.

16           **Q**        If you would turn to the second page of this  
17 document and read the second sentence on the second  
18 page beginning with "the fourth quarter."

19           **A**        "The fourth quarter of this year appears to  
20 be the time when U. S. natural gas consumption will  
21 become supply limited."

22           **Q**        Did TECO rely on this statement as the basis  
23 to support it forecasts?

24           **A**        In 1992 we received information from Groppe,  
25 Long & Littell, as well as other forecasting agencies,

1 as well as did research of our own to determine a  
2 forecast. We did not rely on this information itself,  
3 but did take it into consideration along with many  
4 other sources of information.

5 Q And did your ultimate decision conform with  
6 the sentence that the natural gas consumption supply  
7 will become limited?

8 A In general we had a fairly strong feeling in  
9 1992, as many other forecasters did, that supply was  
10 tightening very rapidly, and based on that, reflected  
11 increasing prices in our gas forecast. We did not  
12 adopt the gas forecast numbers that Groppe, Long &  
13 Littell provided us in 1992.

14 Q Has that supply, the gas supply, become  
15 limited from that time until now?

16 A Yes, I believe it has.

17 Q Then you would -- have you ever heard of the  
18 term the "gas bubble"?

19 A Yes, I have.

20 Q Would you please explain the term the "gas  
21 bubble," please?

22 A The way I describe the "gas bubble" is in  
23 the simple terms of being able to deliver more gas or  
24 excess deliverability of gas versus the amount of  
25 consumption.

1 Q Has there been -- let me put it this way,  
2 has that gas bubble dissipated? Is there  
3 deliverability of the gas?

4 A There's an amount of excess deliverability  
5 that has to exist as a minimum, I believe, and other  
6 forecasters believe, I think, in order to have the gas  
7 markets survive on a going-forward basis. And I  
8 believe that in the winter of 1995-1996 we reached,  
9 and in some cases possibly even exceeded, that minimum  
10 level of excess deliverability in the gas market in  
11 the U. S.

12 Q Would you turn to composite exhibit, Page 1,  
13 and if you would, would you identify that document,  
14 please?

15 A Are you referring to a Bate stamp 1?

16 Q Bate stamp 1, yes, please.

17 A All I can tell you is what the document  
18 appears to be, and it appears to be an advertisement  
19 for a study being prepared by a group called Swanson  
20 Energy Group.

21 Q In your position as fuel director, did you  
22 ever examine this document or order the formal study  
23 that was proposed by this document?

24 A Not to my knowledge, no.

25 Q This document was presented to us in the

1 production of documents from Tampa Electric. If you  
2 had not seen this document, who would have been  
3 responsible for reviewing this document and judging  
4 its importance to your fuel estimates?

5 A We receive advertisements for studies  
6 similar to the one described in this document,  
7 numerous times, sometimes more than one a day. And I  
8 don't know that there would be anybody responsible for  
9 necessarily reviewing it at Tampa Electric Company.

10 Q Then it would be fair to say then that Tampa  
11 Electric chooses only to look at particular forecasts  
12 or forecasters in making its analysis and eliminates  
13 others in the process?

14 A We make a selection of those forecasts that  
15 we want to consider. We typically rely on what we  
16 consider to be nationally reputable firms that have  
17 strong records of examining the fundamentals of the  
18 supply and demand markets. We do not make it a  
19 practice to attempt to review or analyze every study  
20 or analysis that comes out on the natural gas, oil or  
21 coal markets or other fuels that we receive  
22 advertisements for on a regular basis.

23 Q Then you would not be aware if that is the  
24 basis that this report harshly criticizes long-term  
25 gas price forecasts.

1           **MR. LONG:** Chairman, I would object to that  
2 characterization of the document.

3           **MS. ERSTLING:** What I am trying to determine  
4 is their studies or reviews of critical forecasts  
5 other than those that they do use.

6           **CHAIRMAN CLARK:** Ms. Erstling, I think he's  
7 objecting to your characterization of this particular  
8 document as being harshly critical. And that's what I  
9 think you need to establish, is that your  
10 characterization is correct.

11           **MS. ERSTLING:** I will do that, I'm sorry.

12           **CHAIRMAN CLARK:** Can I ask the witness, what  
13 interrogatory or document request was this in response  
14 to?

15           **WITNESS SMITH:** I really don't know. This  
16 is the first time I've ever seen this document --

17           **CHAIRMAN CLARK:** Oh.

18           **WITNESS SMITH:** -- was sitting here today.

19           **CHAIRMAN CLARK:** Staff, what is the source  
20 of this document?

21           **MS. ERSTLING:** Production of documents, I  
22 think it was No. 3, but it was one of the production  
23 of documents that were given to us in this docket,  
24 960409.

25           **WITNESS SMITH:** We provided a significant

1 amount of material to be produced in relation to  
2 requests that had anything to do with forecasting that  
3 might be in our files.

4 **CHAIRMAN CLARK:** Okay.

5 **WITNESS SMITH:** And, frankly, I'm a little  
6 surprised that this would have made it in there since  
7 it's basically an advertisement rather than a study  
8 itself. But it might have been included in the  
9 documents -- apparently was included in the documents  
10 that we provided to the Staff for review.

11 **CHAIRMAN CLARK:** Okay.

12 Q (By Ms. Erstling) On Page 4 -- Page 5,  
13 Bate stamp 5, in the center of the page, or the bottom  
14 of the page, there is a section titled, "Critique of  
15 Gas Forecasts." And it says, "There's no need to  
16 belabor the difficulty of long-term forecasting,  
17 especially of energy markets. The track record has  
18 been poor partly due to inherent uncertainties but  
19 also because of a number of theoretical errors and  
20 underlying biases." Would you agree with that?

21 A I would not agree that it's -- that there's  
22 no need to look at the forecasting and the  
23 fundamentals behind those as this seems to insinuate  
24 in the energy markets. I think it is important for  
25 utilities to review that type of information on a



1 regular basis to be informed as possible as to what  
2 energy markets are doing, and how they are performing  
3 in order to be able to not only be aware of that, but  
4 be able to analyze those and make prudent decisions  
5 when they look forward in time.

6 I do believe that in general that it's a  
7 widely known bit of information that forecasters in  
8 general of natural gas prices over the last ten years.  
9 And we have provided testimony in this docket to  
10 indicate that they have missed the mark in the short  
11 term due to a set of circumstances which we've  
12 attempted to describe in the testimony in this case as  
13 to what we think those circumstances were.

14 So from the standpoint that they do indicate  
15 that there have been poor forecasts done or the  
16 forecasts have performed poorly in relationship to the  
17 actual prices, I think that's a generally accepted  
18 phenomena.

19 Q What is your definition of "short term?"

20 A I think you have to put that a little bit  
21 more in context for me.

22 Q Well, we have been referencing the term of  
23 long-term forecasting of fuel prices and short-term  
24 forecasting of fuel prices. Would you give me an  
25 example of the extension of years that you would

1 consider to be a short-term fuel price forecast and  
2 what you would consider to be a long-term fuel price  
3 forecast?

4       **A**     Since we typically forecast prices out 30  
5 years for planning purposes, I would consider a  
6 30-year forecast and beyond long-term forecasting.  
7 Short-term forecasts, I don't know that I have a  
8 precise definition for it, but I would probably  
9 consider it somewhere on the order of anywhere between  
10 two and ten years.

11               **CHAIRMAN CLARK:** What did you say was long  
12 term, again?

13               **WITNESS SMITH:** Thirty years and beyond.  
14 Since we're required to produce forecasts that are 30  
15 years out in time, that's typically what I refer to as  
16 a long-term forecast.

17       **Q**     **(By Ms. Erstling)** Then it would be fair  
18 to say that over the short term, in the last five to  
19 ten years, that the price of gas has not escalated as  
20 rapidly as was anticipated by the forecast?

21       **A**     I wouldn't agree with that statement. If  
22 you look at this document, in fact, Ms. Erstling, over  
23 as Bate stamp 3, just for easy reference purposes,  
24 since it's out, there's a list of forecasts provided  
25 there by DOE and GRI, which is the Gas Research

1 Institute, the American Gas Association, and so forth,  
2 showing what their forecasts have been in an effort  
3 to, I think, portray them as being not very good  
4 forecasts, when in fact in 1996 the prices that we're  
5 seeing today are higher than all of these numbers on  
6 this chart, at least eyeballing it across the way.

7 Q Let me ask, since the price escalated over  
8 the winter peak of 1996, and you referred to this for  
9 February of 1996, have the prices declined  
10 considerably from that \$5.34 price that you quote on  
11 Page 20 of your prefiled testimony?

12 A They have moderated to some extent, yes.  
13 And the prices I was referring to when I just  
14 mentioned that were actually referring to today's  
15 prices and not what we saw in February of this year.

16 Q Do you believe that there's less than nine  
17 years of natural gas available from the current  
18 reserves?

19 A Reserves are characterized in different ways  
20 in the gas industry. There is something titled,  
21 "Proven Reserves." And proven reserves are those  
22 reserves that have been drilled and discovered, as I  
23 understand it, and basically ready for development and  
24 production. And to the extent that you're talking  
25 about proven reserves, in general over the last few

1 years there's been somewhere in the order of about  
2 eight to nine years of proven reserves available in  
3 this country.

4 To the extent that you want to the expand  
5 that definition to be other reserves that most people  
6 believe are available, then there is quite a bit more  
7 gas available than just eight to nine years of gas.

8 Q Then the fact centers around the term you're  
9 using is a prudent reserve, what you are determining  
10 to be a prudent reserve; would that be a correct  
11 assessment?

12 A Are you referring to a statement that I've  
13 made?

14 Q Yeah. I think you just spoke about being a  
15 prudent reserve, and I'm not too sure if I understood  
16 how you were using the term "prudent." Would that be  
17 your assessment of what was a prudent reserve or is it  
18 a proven reserve that you're talking about? I may  
19 have misheard the word?

20 A It's proven.

21 Q I'm sorry. The mikes are not too good.

22 A I apologize.

23 Q It's not your fault.

24 A Yes, in general it's my testimony and,  
25 generally, I think a fairly well accepted piece of

1 information again in the gas forecasting business that  
2 about eight to nine years of proven reserves are  
3 available in the U. S.

4 Q When did TECO first become aware of the  
5 errors in its 1992 natural gas price forecast?

6 A Did you say the errors?

7 Q Well, let's state it another way. When did  
8 TECO become aware that its 1992 natural gas price  
9 forecast was an overstated price? (Pause)

10 A We generally monitor the market prices for  
11 commodities such as natural gas and oil and coal on a  
12 very frequent basis, often daily. And, therefore, we  
13 are aware when prices are going up or down or  
14 remaining constant as they occur. We do not attempt  
15 to reforecast prices frequently, as in daily or  
16 weekly. That's often an exercise that's done once or  
17 twice a year.

18 I'm not sure how to answer your question  
19 exactly, other than to indicate that we would have  
20 been aware that prices would have been different than  
21 our forecast as they would have occurred. However,  
22 those type corrections and adjustments and factors are  
23 taken into account only when we would be doing our  
24 next forecast.

25 Q Then you would be aware of the differences

1 between the actual and your forecasted gas prices  
2 prior to doing your next gas price forecast, would you  
3 not?

4       **A**     In general. We forecast prices on a yearly  
5 basis, and as we monitor prices, you can't monitor  
6 them on a yearly basis except every year. But the  
7 next time we would have done the forecast we would  
8 have been aware of the differences observed over the  
9 past year attempted to analyze those differences, the  
10 causes for those differences and take that information  
11 into account as we perform the next forecast.

12       **Q**     You are the person, or your division is the  
13 group that supplies Mr. Hernandez with the basic  
14 information that he uses for his forecasting; is that  
15 correct?

16       **A**     That's correct.

17       **Q**     You've just said that at some point in the  
18 year when you're evaluating and comparing prices, that  
19 you look back and see at least where you were in  
20 comparison to the prior year's forecast. Would that  
21 be correct?

22       **A**     That's correct.

23       **Q**     In 1992, or even I might say when in 1992  
24 did TECO notice that its 1991 forecast for natural gas  
25 prices had not materialized?

1           A     Again that's a difficult question to answer  
2 with any degree of accuracy to give you a time frame.

3                     In 1991, if we prepared the forecast, for  
4 example, in the summer of that year, and the first  
5 full year of forecast we would have done is a 1992  
6 forecast. We would not know what the average price  
7 for 1992 was until sometime in 1993. So we would have  
8 had some information to indicate what the actual data  
9 had been year-to-date by the time we got around to  
10 doing the forecast in 1992, but we would not have had  
11 a complete year of information for 1992 available at  
12 that point in time.

13           Q     But you certainly would have had sufficient  
14 information to notice a trend or a differential  
15 between your forecasting for the prior year and your  
16 forecast that you needed to prepare at that time.

17           A     That's correct. And those differences would  
18 have been taken into consideration and evaluation and  
19 preparation of any additional forecasts that were  
20 done.

21           Q     Did TECO take into consideration then that  
22 in each of the years, '92, '93, '94 and '95 that the  
23 prior year's natural forecasted prices by TECO did not  
24 materialize?

25           A     I don't think I could agree with that

1 statement that you made for all of those years, but  
2 each of the years that we would have done a new  
3 forecast we would have taken into consideration any  
4 differentials that would have existed from any  
5 previous forecast. And Tampa Electric's forecasts,  
6 like many other forecasts throughout this time, have  
7 projected gas prices to go up in general faster than  
8 they did, and decreased and incorporated that  
9 information into subsequent forecasts that they've  
10 done, and Tampa Electric's forecasts have done that as  
11 well.

12 Q You said that along the way you took this  
13 into consideration and you adjusted Tampa Electric's  
14 forecasts. Were the forecasted prices ever adjusted  
15 downward?

16 A Yes, I believe in each and every year that I  
17 recall they were adjusted downward.

18 Q And in the amount that we were adjusted  
19 downward, did the next year, the actual prices be even  
20 lower than the forecast again?

21 A Not in that entire time period that you  
22 refer to.

23 Q Do you know which time period?

24 A Our 1995 forecasts have projected prices to  
25 be lower. If you'll give me a second I'll look at



1 some information and there may be others as well.

2 (Pause) There's an awful lot of paper over here. It  
3 will just take me a minute.

4 Q Well, let's on go on to -- and we can come  
5 back to that if you locate it. Let me ask you another  
6 question so we can move along.

7 Has TECO performed a worst-case analysis in  
8 the years 1992, '93, '94 and '95 in it's  
9 cost-effectiveness evaluations? And I'm not talking  
10 about at the time that we requested one during  
11 preparation for this docket, I'm talking any time  
12 prior to that in those years.

13 MR. LONG: Chairman Clark, I wonder if we  
14 could have some clarification on what's meant by  
15 "worst-case analysis"? As we've seen, there have been  
16 a number of variations in what the Staff has referred  
17 to as "worst-case analysis."

18 MS. ERSTLING: I think that we could define  
19 it as looking at it and looking at the minimum, lowest  
20 gas price that could be expected to be seen and using  
21 that in your cost-effectiveness analysis.

22 A Mr. Hernandez is the witness that deals with  
23 the cost-effectiveness studies. And if any  
24 cost-effectiveness studies were done using low gas  
25 scenarios or those type of analyses, he would be the

1 witness that could answer that. I'm not aware whether  
2 he did or did not perform those analyses.

3 Q Then considering the concerns that the  
4 Commission stated regarding natural gas fuel price  
5 forecasting that was pressed in Orders 92-0002 and  
6 92-1355, you were not asked to provide a minimum fuel  
7 forecast to Mr. Hernandez, material for it that he  
8 could use?

9 A I'd like to see the document you're  
10 referring to, if I could. We do provide Mr. Hernandez  
11 a low band forecast on a regular basis.

12 Q Is a low band forecast the same thing as  
13 what you would call a minimum fuel forecast?

14 A I wouldn't use the term "a minimum fuel  
15 forecast." A low band forecast is anticipated to  
16 bound within a fairly high degree of probability how  
17 low the gas price forecast could be or on a high band,  
18 how high the gas price forecast could be.

19 Q Is it your understanding that the future FGT  
20 transportation tariffs are expected to be somewhere  
21 between the current FTC-S1 and FTC-S2 rates?

22 A Are you referring to future beyond those  
23 tariffs that are in existence today?

24 Q Yes.

25 A I would characterize my understanding as

1 being that those tariffs are generally expected to be  
2 closer to what FTS-2 rates are today.

3 Q What information did TECO have in 1992 about  
4 future pipeline capacity?

5 A Back in that time period of around 1992  
6 there was an effort to expand Florida Gas  
7 Transmission's capacity into the state of Florida as  
8 well as potentially bring a pipeline across the Gulf  
9 of Mexico and expand the amount of gas that would be  
10 made available to the state of Florida through a  
11 project called the "Sunshine Pipeline," I believe is  
12 what it was referred to.

13 Q Did you know specifically at that time  
14 whether or not the sunshine pipeline was going to be  
15 built or that it was not going to be built?

16 A I don't recall the specifics of the schedule  
17 of that pipeline. I know and followed the progression  
18 of that pipeline as it proceeded through time, but  
19 thinking back, I don't remember the dates in which  
20 they were proceeding and which dates they cancelled  
21 that project.

22 Q Is it correct that during the years 1992  
23 through 1995 that TECO only attempted to acquire firm  
24 or interruptible gas directly through FGT?

25 A No, we really did not attempt to acquire gas

1 during that time period except for the purposes of the  
2 small Sebring facility that we owned at that point in  
3 time. There would have been no reason for us to  
4 acquire gas when we didn't have any facilities that  
5 burned gas.

6 Q Would you have looked at the ability -- in  
7 making your cost-effectiveness evaluations and the  
8 input into them in the forecasting for fuel price,  
9 would you have looked only to acquiring from FGT as  
10 the basis for making those forecasts?

11 A No, we would have looked to acquire gas from  
12 anyplace that we thought it might be available at that  
13 point in time.

14 Q Did TECO contact other marketers and other  
15 natural gas users and future users like, FPC in Hardee  
16 or LDCs, to see about the availability and the  
17 pricing?

18 A We had regular contacts with many different  
19 gas suppliers, gas marketers, the Sunshine Pipeline,  
20 Florida Gas Transmission; I believe we may have met  
21 with Peoples Gas during that time period as well, and  
22 kept in general what we felt like was a good general  
23 awareness of what was taking place in the gas markets  
24 to be able to analyze what the alternatives available  
25 to us were.

1           Q     Among those production of documents that  
2 were supplied to us was a report from Arthur Andersen,  
3 U. S. Natural Gas and Supply. Are you aware of Arthur  
4 Andersen's expertise in the field of examining North  
5 American natural gas trends?

6           A     Not very specifically, no, and I wouldn't  
7 classify them as being on the list of the most well  
8 known people in that field.

9           Q     Then it would be fair to say, then, that you  
10 probably did not -- let me ask you this: Did you see  
11 the document which was called, "Andersen Consultants  
12 North American Natural Gas Trends Study"?

13          A     Do you have a copy of it?

14          Q     Yes, I do. (Hands document to witness.)

15          A     I don't ever recall seeing that document  
16 before.

17          Q     Then we'll just withdraw the question on  
18 that.

19                     Let me just ask you one question. Again let  
20 me go back, how do you determine, as director of the  
21 Energy Supply Services, which particular documents or  
22 consultants you are going to examine? How is that  
23 selection process done?

24                     CHAIRMAN CLARK: I'm sorry, were you  
25 finished?

1 MS. ERSTLING: I just asked a question of  
2 Mr. Smith.

3 A We subscribe to two different private sets  
4 of forecasts and make the selection of those based on  
5 the range of opinions that those forecasters have and  
6 the detailed amount of analysis that we're aware that  
7 they can provide us. In addition to those two  
8 subscriptions that are required for us to contract  
9 for, we also attempt to gain access to any information  
10 that's in the public domain from what we consider to  
11 be a group of the major forecasters in the country.  
12 And much of that information is available from  
13 organizations such as DOE, the Energy Information  
14 Administration, and there may be others, American Gas  
15 Association.

16 Q Let me ask you, has Tampa Electric  
17 recognized the role of the independent marketer in the  
18 gas industry?

19 A I believe that we know they play a part,  
20 yes.

21 Q Does Tampa Electric regard them as providing  
22 an expanded ability to obtain natural gas and at the  
23 same time mitigate market risks?

24 A Marketers provide a service in the industry,  
25 and in some cases, based on the ability they have to

1 work with several different clients, there are some  
2 services that they can provide that are not available  
3 to individual buyers.

4 Q Isn't it possible that by paying certain  
5 things known as a reservation fee, the marketer assumes  
6 much of the market risk when you use them?

7 A In some applications marketers will take  
8 some of the risk. Usually they do that only to the  
9 extent that they are able to backstop that risk  
10 against other commitments that they either have or  
11 know they can put in place.

12 Q But the ability to have that market risk  
13 mitigated is available from an independent broker if  
14 you contract for it in that manner; is that correct?

15 A In some circumstances I think that that may  
16 be applicable, yes.

17 Q Would you be familiar with, in your  
18 position, with the fuel procurement for the Hardee  
19 power station?

20 A I have a general familiarity with that, yes.  
21 Not a specific one.

22 Q Well, you mentioned I believe on Page 91,  
23 Lines 5 through 12 in your deposition that when you  
24 were using gas for the Hardee power station, quote,  
25 "you had a firm commitment to take certain quantities

1 of gas over a period of time and the marketer bore the  
2 risk and the benefit of any excess firm capacity." Is  
3 that a correct statement?

4           **MR. LONG:** Chairman, could the witness take  
5 a look at that statement in context? (Hands document  
6 to witness.)

7           **CHAIRMAN CLARK:** Ms. Erstling, how much more  
8 do you have for this witness?

9           **MS. ERSTLING:** Maybe five, seven questions.

10           **CHAIRMAN CLARK:** Okay.

11           **WITNESS SMITH:** As I indicated in that  
12 question, I indicated that that may or may not have  
13 been true, that I didn't have a specific recollection  
14 of that being the case. At one time I think that was  
15 the case. It may still be true.

16           **Q**        **(By Ms. Erstling)** At any point did Tampa  
17 Electric consult a marketer about the possibility of  
18 getting gas for the Polk station?

19           **A**        Again, we have contact with gas marketers on  
20 a regular basis. We have never attempted to go out  
21 and secure a supply of gas for a power plant that  
22 didn't exist. And since we've been constructing and  
23 continued to support the cost-effectiveness of our  
24 IGCC facility, we have not attempted to acquire gas  
25 for that facility. However, in our discussions with



1 marketers and gas pipelines, and gas suppliers, we  
2 have attempted to be able to know enough about the  
3 contractual provisions that they were willing to enter  
4 into to be able to accurately assess what was  
5 available to us in the marketplace.

6 Q Prior to 1993, did Tampa Electric have any  
7 experience with pet coke?

8 A Yes, I believe we did.

9 Q Can you explain what experience there  
10 existed with pet coke at that point?

11 A I think we purchased pet coke for use in our  
12 steam boilers over the years dating back into the  
13 '70s.

14 Q It was used for your steam boilers, but did  
15 you have any idea at that point in time of the design,  
16 operational or cost issues associated with the use of  
17 pet coke in a gasifier?

18 A In the 1970s?

19 Q In 1993. I'm saying did you in 1993?

20 A Yes. We did not have personal experience.  
21 We did have knowledge, and understanding, and had  
22 sought out information as early as 1990 or 1991, about  
23 the potential use of petroleum coke.

24 Q Had you associated at that point in time and  
25 had you addressed the issues of design and operation

1 of pet coke to determine any of the costs of the  
2 operation of pet coke in 1993?

3 A Yes.

4 Q Did TECO have a long-term contract for pet  
5 coke for any of its generating units in 1993?

6 A No.

7 Q Does TECO have a long-term contract for pet  
8 coke for any of its generating units at this time?

9 A No, we do not.

10 Q If TECO considers pet coke to be a viable  
11 feedstock, wouldn't it be appropriate to enter into  
12 some long-term contract for pet coke?

13 A At some point in time I believe that's true,  
14 and we have begun to investigate that. We have talked  
15 with suppliers about it. We evaluated long-term bids  
16 for petroleum coke, and I think at some point that may  
17 become totally appropriate.

18 Q Did TECO include a pet coke fuel price  
19 forecast in its 1994 ten-year site plan filing?

20 A I don't know the answer to that question. I  
21 was not personally involved with the filings of the  
22 Ten Year Site Plans.

23 Q Who would know the answer to that?

24 A Mr. Hernandez probably knows the answer to  
25 it.

1 Q Okay. Mr. Smith, in your response to  
2 Interrogatory 20, in Docket No. 950379 and again in  
3 late-filed deposition exhibits in this docket, you  
4 have stated that the siting task force conducted  
5 in-depth analyses of the sites and the economic  
6 analysis showed 1990 dollars that the Polk power  
7 station site was approximately 41 million to  
8 51.7 million more than for the Port Manatee site. Is  
9 that a correct statement?

10 A Yes, I believe it is.

11 Q Isn't it a fact that the siting task force  
12 was never given the criteria and did not consider cost  
13 of land in its review of any of the proposed sites?

14 A That's my understanding, yes.

15 Q Isn't it also a fact that when making its  
16 final termination between Polk A, Polk 1, and Polk 2,  
17 that Tampa Electric did not use cost of land as a  
18 criteria?

19 A That's correct.

20 MS. ERSTLING: I think I'm finished with  
21 this witness.

22 CHAIRMAN CLARK: We're going to go ahead and  
23 break for the evening, and we will do Mr. Smith's  
24 redirect tomorrow, first thing, 8:30 in the morning.  
25 We intend to get through this proceeding tomorrow, so

1 you can be prepared for a short lunch and a long  
2 evening if we don't speed up. Okay?

3 I will see you all tomorrow at 8:30.

4 (Thereupon, the hearing adjourned at 5:00  
5 p.m. to reconvene at 8:30 a.m., Thursday, July 18,  
6 1996 at the same address.)

7 - - - - -

8 (Transcript continues in sequence in Volume  
9 3.)

10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25