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July 13, 1989

Mr. Steve Tribble
Division of Records and Reporting
Florida Public Service Commission
101 East Gaines Street
Tallahassee, FL 32301

RE: Docket No. 890148-E1

Dear Mr. Tribble:

Enclosed please find 15 copies of the Testimony and Exhibits of Mr. S. S. Waters in Docket No. 890148-E1.

Very truly yours,



Matthew M. Childs, P.A.

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BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Petition of the Florida)
Industrial Power Users Group)
to Discontinue Florida Power) Docket No. 890148-EI
& Light Company's Oil Backout)
Cost Recovery Factor)

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that on the 13th day of July, 1989, a true and correct copy of Florida Power & Light Company's Testimony and Exhibits of S. S. Waters in Docket No. 890148-EI was served by hand delivery on the following persons:

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**BEFORE THE FLORIDA
PUBLIC SERVICE COMMISSION**

**DOCKET NO. 890148-EI
FLORIDA POWER & LIGHT COMPANY
JULY 13, 1989**

**IN RE: LEVELIZED OIL-BACKOUT
COST RECOVERY FACTOR**

**TESTIMONY & EXHIBITS OF:
S.S. WATERS**

DOCUMENT NUMBER-DATE
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**BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION
FLORIDA POWER & LIGHT COMPANY**

**Re: Petition To Discontinue FPL's
Oil Backout Cost Recovery Factor
Docket No. 890148-EI**

**Testimony Of:
Samuel S. Waters
July 13, 1989**

**DOCUMENT NUMBER-DATE
06897 JUL 13 1989
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**BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION
FLORIDA POWER & LIGHT COMPANY
TESTIMONY OF SAMUEL S. WATERS
DOCKET NO. 890148-EI
JULY 13, 1989**

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

2 **A. My name is Samuel S. Waters and my business address is 9250 West**
3 **Flagler Street, Miami, Florida 33174.**

4

5 **Q. By whom are you employed and what position do you hold?**

6 **A. I am employed by Florida Power & Light Company ("FPL") as the**
7 **Manager of Power Supply Planning.**

8

9 **Q. Please describe your education and professional experience.**

10 **A. I graduated from Duke University with a Bachelor of Science**
11 **Degree in Electrical Engineering in 1974. From 1974 until 1985, I**
12 **was employed by the Advanced Systems Technology Division of**
13 **Westinghouse Electric Corporation as a consultant in the areas of**
14 **Transmission Planning and Power System Software. While employed**

1 at Westinghouse, I earned a Masters Degree in Electrical
2 Engineering from Carnegie-Mellon University.

3
4 Q. What is the purpose of your testimony?

5 A. The purpose of my testimony is to address several issues in the
6 Florida Industrial Power Users Group's (FIPUG) Petition to
7 Discontinue FPL's Oil Backout Cost Recovery Factor. The Petition
8 erroneously contends that FPL's 500 KV Transmission Project
9 ("Project") has not achieved its purpose, and that the claimed
10 capacity deferral benefits of the Project are illusory because they
11 are based on fictional units. My testimony discusses these issues
12 as they relate to the Project and the associated capacity purchases,
13 or Unit Power Sales ("UPS"), from the Southern Companies and
14 their consideration in the Oil Backout Cost Recovery Factor.

15
16 First, I will describe the Project and the associated purchases. I
17 explain how the Project revenue requirements, the capacity charges
18 paid to the Southern Companies and more recently, net savings,
19 have been recovered through the Oil Backout Cost Recovery
20 Factor. I also present a brief historical overview of the Project,
21 including a discussion of original qualification and subsequent
22 regular review by the Commission.

23
24 Second, my testimony reestablishes the fact that the Project and
25 the associated power purchases from Southern Company meet the

1 primary purpose of economically displacing oil-fired generation.
2 This was demonstrated to the Commission using the Primary
3 Purpose Test in the original qualification proceedings. The Project
4 continues to meet the Primary Purpose Test, even when viewed in
5 light of significantly lower oil prices than originally projected. In
6 reviewing this test, I discuss why inclusion of the UPS capacity
7 payments in the performance of the test is incorrect.

8
9 Third, I also discuss, in general terms, how the planning process
10 identifies the need for capacity and the timing of decisions required
11 to meet future needs. I discuss how capacity deferral benefits
12 have been used by FPL to calculate and recover savings accruing
13 from the Project and UPS purchases through the Oil Backout Cost
14 Recovery Factor since 1987. In this discussion, I show how these
15 savings are associated with the deferral of Martin Coal Unit Nos.
16 3 and 4, and that these units were, in fact, deferred by the
17 Project.

18
19 Finally, I will present my conclusions regarding the impact of the
20 Project and the propriety of its cost recovery through the Oil
21 Backout Cost Recovery Factor.

22
23 Q. Do you have any documents attached to your testimony?

24 A. Yes. Attached to my testimony are Document Nos. 1 through 4.

1 **Project Overview**

2 **Q. Please describe FPL's 500 KV Transmission Project, which is being**
3 **recovered through the Oil Backout Cost Recovery Factor.**

4 **A. The Project is comprised of two 500 KV transmission lines and**
5 **associated substation facilities. The Project runs along the Florida**
6 **east coast from the Georgia-Florida state line to the Martin and**
7 **Midway substations in Martin and St. Lucie Counties, respectively.**
8 **There, the lines tie into other portions of FPL's 500 KV network,**
9 **which extends to Dade County and the west coast of Florida. The**
10 **substation facilities in the Project integrate the Project with FPL's**
11 **other 500 KV lines and FPL's 230 KV transmission system. My**
12 **Document No. 1 contains a graphic showing FPL's 500 KV**
13 **Transmission Project.**

14
15 **Q. Please explain how the Project was built.**

16 **A. The Project was built in three phases, with varying completion**
17 **dates for specific Project elements. The construction phasing**
18 **allowed earlier and fuller utilization of the UPS purchases. The**
19 **Project phases were consistently completed at or ahead of schedule,**
20 **thereby reducing Project revenue requirements. My Document**
21 **No. 2, which relies in part on Mr. Scalf's Project Description in the**
22 **original certification proceeding, shows the phasing of the Project,**
23 **the scheduled completion dates and the actual completion dates.**

1 Q. You state that the Project was constructed ahead of schedule; how
2 do the Project's actual construction costs compare to those
3 projected by FPL in the certification proceeding?

4 A. Quite favorably. FPL originally projected that the investment in
5 the Project, when fully completed, would be \$484,109,000. FPL's
6 actual construction cost and investment in the Project was
7 \$326,020,276 when the last segment was brought on-line in June,
8 1985.

9
10 Q. Please describe the UPS power purchases associated with the
11 Project.

12 A. In the Project's qualification proceeding, FPL explained that the
13 development of the 500 KV Transmission Project was related to UPS
14 purchases from the Southern system. Southern had offered for
15 sale, from the early 1980's through the mid-1990's, power generated
16 at coal-fired power plants in their system. With FPL's major load
17 centers in South Florida, to take advantage of this coal-fired
18 power, FPL and Southern would have to transmit the power from
19 the Southern Companies' power plants to FPL load centers through
20 high voltage transmission lines.

21
22 As Mr. Scalf explained in the qualification proceeding, the UPS
23 agreement with the Southern Companies provided for increased
24 purchases from relatively small amounts in mid-1982 to significant
25 levels in 1985 through 1992. Then, as the Southern Companies'

1 load increased in the 1990's, needing the UPS capacity for their
2 own use, the purchases decreased between 1993 and 1995, with
3 the UPS purchases ending in May, 1995.

4
5 **Q. Are the costs of the UPS purchases recovered through FPL's Oil
6 Backout Cost Recovery Factor?**

7 **A. Yes, in part. In the original proceeding authorizing FPL to
8 recover costs through its Oil Backout Cost Recovery Factor, the
9 Commission authorized the recovery of the capacity and wheeling
10 charges associated with FPL's UPS purchases. In Order No. 11210,
11 the Commission stated:**

12
13 The primary purpose of the 500 KV transmission project,
14 as determined in the qualification hearings, is economic
15 oil backout. Savings associated with the importation of
16 coal by wire over the 500 KV transmission project could
17 not be obtained without paying capacity and wheeling
18 charges to Southern Company. Hence, capacity and
19 wheeling charges should be collected through either the
20 Fuel Adjustment Factor or the Oil Backout Cost Recovery
21 Factor. . . . We find that the capacity and wheeling
22 charges should be collected through the Oil Backout Cost
23 Recovery Factor to reduce confusion and to facilitate the
24 review of costs being recovered by the Company.

1 Consistent with this decision in September, 1982, in each
2 subsequent recovery proceeding FPL has sought and the
3 Commission has approved recovery of the UPS capacity and
4 wheeling charges through the Oil Backout Cost Recovery Factor.
5 Energy costs associated with the UPS purchases are recovered
6 through FPL's Fuel and Purchased Power Cost Recovery Factor
7 ("Fuel Clause").

8
9 **Q. Please summarize the 500 KV Transmission Project Oil Backout
10 Qualification Proceeding.**

11 **A. FPL initiated that proceeding on March 30, 1982 by filing with the
12 Commission a petition seeking authority to recover the cost of the
13 proposed Project through an Oil Backout Cost Recovery Factor.
14 Both FIPUG and the Office of Public Counsel ("Public Counsel")
15 intervened and actively opposed FPL's petition. After hearings
16 in June, July and August, 1982, the Commission issued on
17 October 1, 1982 a detailed order, Order No. 11217, finding that
18 FPL's 500 KV Transmission Project qualified for recovery under
19 an Oil Backout Cost Recovery Factor.**

20
21 Both Public Counsel and FIPUG sought reconsideration of Order
22 No. 11217. The Commission denied reconsideration in Order
23 No. 11537 issued on January 24, 1983.

1 In the meantime, the Commission had issued Order No. 11210
2 authorizing FPL to begin recovery of the Project and the associated
3 UPS capacity and wheeling charges through an approved Oil
4 Backout Cost Recovery Factor. FIPUG and Public Counsel
5 participated actively in that proceeding as well, opposing recovery
6 of the Project through an Oil Backout Cost Recovery Factor.

7
8 Public Counsel appealed both Order No. 11210, the order approving
9 recovery and Order No. 11217, the order finding the project
10 qualified, to the Florida Supreme Court. On April 12, 1984, the
11 Supreme Court issued its decision in Citizens v. Public Service
12 Commission, 448 S.2d 1024, affirming both orders of the
13 Commission.

14
15 **Q. What costs does FPL recover through its Oil Backout Cost Recovery**
16 **Factor?**

17 **A. In addition to the UPS capacity and wheeling costs previously**
18 **discussed, FPL recovers revenue requirements on its Project. FPL**
19 **has also been recovering and taking as accelerated depreciation**
20 **on the Project, two-thirds of the actual net savings experienced as**
21 **a result of the Project. As I discuss later in my testimony, these**
22 **actual net savings reflect, among other things, capacity deferral**
23 **benefits associated with Martin Unit Nos. 3 and 4, two coal units**
24 **deferred by the Project, and the related UPS purchases from the**
25 **Southern Companies.**

1 Q. How often does the Commission consider FPL's recovery of costs
2 through the Oil Backout Cost Recovery Factor?

3 A. The Commission has reviewed the computation and approved a
4 factor every six months since the original decision in September,
5 1982 allowing FPL to begin recovery through the factor. This is
6 done as part of the Commission's ongoing Fuel Clause hearings.
7 FPL has always supported the computation of its factor with
8 prefiled testimony. As in the case of the Fuel Clause Proceeding,
9 the Oil Backout Cost Recovery Factor is subject to true-up
10 calculations to assure an accurate recovery of costs from
11 ratepayers. In addition, in FPL's last rate case, FPL requested
12 that the Commission remove the recovery of some Project revenue
13 requirements from the factor and place them in base rates. The
14 Commission specifically declined to do this. There has been
15 regular, formal Commission scrutiny of FPL's recovery of costs
16 through the Oil Backout Cost Recovery Factor.

17
18
19 Primary Purpose - Economic Oil Displacement

20 Q. What is the primary purpose of the Project?

21 A. The primary purpose of the Project is economic displacement of oil-
22 fired generation. Proof of this purpose was required by the
23 Commission to qualify the project for cost recovery under the Oil
24 Backout Cost Recovery Factor rule.

1 In its adoption of the Oil Backout Cost Recovery Factor rule, the
2 Commission stated in Order No. 10554 that: "Rule 25-17.16 is
3 intended to be used by investor owned electric utilities for the
4 recovery of costs of implementing specified supply side
5 conservation measures which will economically displace oil generated
6 electricity." Similar language regarding the necessary primary
7 purpose of an Oil Backout Project is found in the Rule itself.
8 Section (2)(a) of the Rule states:

9
10 (a) The Oil Backout Cost Recovery Factor is to be
11 utilized for the recovery of costs of implementing
12 any of the following supply side, oil conservation
13 measures the primary purpose of which is the
14 economic displacement of oil generated electricity in
15 Florida

16
17 Among the supply side, oil conservation measures specifically listed
18 is "Transmission Line Construction Cost when the primary
19 purpose the construction of the lines is to increase the importation
20 or transfer of non-oil derived electrical energy on either a firm or
21 non-firm basis." Consistent with these statements that the primary
22 purpose of a project must be economic oil displacement,
23 Section (3)(a)1. provides that for a project to qualify for recovery
24 through the Oil Backout Cost Recovery Factor, the Commission
25 must have made a finding that: "The primary purpose of the

1 proposed project is the economic displacement of oil fired generation
2 in the State of Florida."

3
4 Q. How was the determination made that the primary purpose of a
5 project is the economic displacement of oil-fired generation?

6 A. The Commission has established a means of testing that issue. In
7 the final order in the Project's qualification proceeding, Order No.
8 11217, the Commission devoted an entire section to the discussion
9 of "The Primary Purpose Test." FPL proposed, and the Commission
10 Staff supported, a Primary Purpose Test which was met if gross
11 fuel savings expected from the Project outweighed all other gross
12 savings on a net present value basis. Neither FIPUG or Public
13 Counsel proposed a test, but Public Counsel, based on an
14 examination of system expansion plans and projected oil usage,
15 argued that FPL's Project and the related unit power purchases
16 were primarily intended to meet load growth rather than displace
17 oil. The Commission rejected these alternatives and stated:

18
19 In our mind, the issue (determination of primary
20 purpose) is best resolved by allocating the fuel costs of
21 the project against the fuel savings and the capacity
22 costs of the project against the capacity savings. We
23 think it proper to allocate costs and benefits in this case
24 because the Company could have purchased the coal by
25 wire power on a non-firm basis, thereby avoiding the

1 capacity costs due Southern but also foregoing the
2 deferred capacity benefits.

3
4 Having stated that UPS capacity costs should not be allocated
5 against fuel savings in determining the Project's primary purpose,
6 the Commission specifically embraced a methodology for determining
7 whether the Primary Purpose Test was satisfied:

8
9 If the net fuel savings exceed the cost of the Project,
10 the Company has met its burden of proof on this issue
11 and demonstrated that the primary purpose of the Project
12 is oil displacement. The Company has done this in
13 Exhibit 15(j).

14
15 Q. Have you examined Exhibit 15(j) from the Qualification Proceeding?

16 A. Yes. I have attached a copy of the original Exhibit 15(j) and a
17 supporting schedule in Docket No. 820155-EU as my Document
18 No. 3. As stated in Commission Order No. 11217, this exhibit
19 reflects the methodology used by the Commission in determining
20 whether or not a project meets the Primary Purpose Test. That is,
21 for the first ten years of the Project, fuel savings are compared to
22 Project revenue requirements.

- 1 Q. Given this specific statement and application of the Primary Purpose
2 Test, has the FIPUG petition properly determined whether or not
3 the project has achieved its primary purpose?
- 4 A. No, it has not. In contending that the Project has not met its
5 purpose, FIPUG has attached a schedule to its Petition, Schedule 2
6 which improperly includes the capacity charges associated with the
7 UPS agreement with Southern Company. This severely distorts the
8 original Commission test. FIPUG erroneously compares net fuel
9 savings to project revenue requirements plus UPS costs. By
10 misstating the test and erroneously including UPS capacity costs,
11 FIPUG makes it appear that the project results in a loss. In fact,
12 the Project has produced net fuel savings as well as actual total
13 savings. If the Primary Purpose Test had been performed in
14 FIPUG's manner in the original qualification proceedings, the
15 Project would not have passed.
- 16
- 17 Q. If UPS capacity costs were not considered in the Commission's
18 Primary Purpose Test, how were they considered in the
19 qualification proceeding?
- 20 A. UPS capacity costs were considered in a separate test, the
21 Cumulative Present Value Test. In that test, the Commission
22 recognized not only the UPS capacity costs, but also the capacity
23 deferral benefits associated with the Project and the importation of
24 coal by wire. It is quite clear from the application of the tests in
25 the qualification order that the Commission intentionally segregated

1 energy costs and savings from capacity costs and savings in
2 applying the Primary Purpose Test and recognized both capacity
3 costs and savings in the Cumulative Present Value Test.
4

5 **Q. What about FIPUG's contention in its Petition that the Project has**
6 **failed to meet its principal purpose due to lower than projected oil**
7 **prices and that the Commission relied on FPL's forecast to qualify**
8 **the Project?**

9 **A. Neither is true. Because of the recognized uncertainty in**
10 **projecting oil prices, three oil price forecasts were presented in the**
11 **original qualification proceeding; a high band forecast, prepared**
12 **by the Department of Energy, a mid band forecast, prepared by**
13 **the Florida Power Electric Coordinating Group, Inc. (FCG) and a**
14 **low band forecast, prepared by FPL and characterized as**
15 **"conservative." The relevant coal price forecast was provided by**
16 **the Southern Companies. In Order No. 11217, the Commission**
17 **stated:**

18
19 Based on the evidence before us, we find that the fuel
20 price forecasts are reasonable and are of sufficient
21 reliability to warrant their use as the starting point for
22 our determination that the project qualifies under the
23 rule.

1 FPL was straight forward in acknowledging the difficulty in
2 accurately projecting oil prices. It is clear from a review of the
3 transcript that the Commission was fully apprised of the probability
4 that actual experience would deviate from the projections and that
5 the deviation might be substantial.

6
7 Oil prices have, in fact, been lower than any of the forecasts used
8 in the original qualification. However, the original intent of
9 presenting a banded forecast was to present a range of possible
10 outcomes, and it was FPL that produced the low band forecast.
11 More importantly, even with actual oil prices lower than those
12 originally projected, the Project has economically displaced oil fired
13 generation.

14
15 **Q. Does the Project still pass the Primary Purpose Test, using actual
16 data and current forecasts?**

17 **A. Yes, however, I would like to add that I do not think it is proper
18 to "requalify" a project. Decisions on whether to qualify a project
19 for Oil Backout Cost Recovery should be made based on the best
20 available information at the time qualification is sought. That is the
21 time when project decisions must be made, information justifying
22 the project is readily available and the Commission is fully apprised
23 of current circumstances affecting a project. Requalification or
24 reevaluation of qualification through hindsight, as FIPUC appears
25 to want to do, is difficult and unfair.**

1 However, putting aside whether it is fair to reconsider Project
2 qualification, it is important in light of FIPUG's allegations for the
3 Commission to know that the Project still passes the Primary
4 Purpose Test. **Despite significantly lower oil prices than originally**
5 **projected, the Project has produced and is still producing net fuel**
6 **savings which exceed the revenue requirements of the Project.**

7
8 I have repeated the original Primary Purpose Test updating with
9 actual data through May, 1989 and using current FPL projections
10 of fuel prices. As with the original Exhibit 15(j), this analysis is
11 performed over the initial ten years of the Project. The results are
12 attached as Document No. 4. Referring to the document, the test
13 adds direct fuel savings of \$1,840,852,000 and fuel related savings
14 of (\$393,121,000), then subtracts the foregone benefit of lower
15 system fuel costs if the Martin units had been built as originally
16 planned, \$796,424,000, to yield a total fuel savings of \$651,307,000.
17 This is well above the total ten year Project revenue requirements
18 of \$295,754,000.

19
20 The contention by FIPUG that the project has not achieved its
21 purpose is untrue. It is the misapplication of the Primary Purpose
22 Test by FIPUG, not lower oil prices, which results in their
23 contention that the project does not meet its purpose.

1 **Actual Net Savings - Deferral Of Martin Unit Nos. 3 And 4**

2 **Q. Has FPL collected any revenues for the project which have resulted**
3 **from actual net savings?**

4 **A. Yes. As authorized by the Rule, and as determined appropriate by**
5 **the Commission in Order Nos. 18136, 19042, 20133 and 20966, FPL**
6 **has and is collecting revenues above Project costs because the**
7 **project has produced net savings.**

8
9 **Section (4)(a) of the Rule authorizes collection of revenues equal**
10 **to:**

- 11
12 • **Straight line depreciation, plus**
13 • **Project cost of capital, plus**
14 • **Actual tax expense, plus**
15 • **Oil/non-oil O&M differential, plus**
16 • **Two-thirds of the actual net savings (if positive)**

17
18 **The amount identified as two-thirds of the actual net savings is**
19 **recovered through the Oil Backout Cost Recovery Factor and**
20 **applied as additional depreciation. This recovery is to continue**
21 **until the Project investment is fully recovered.**

1 Q. How were actual net savings derived in each of the instances?

2 A. The specific methodology for determining the actual net savings for
3 inclusion in FPL's Oil Backout Cost Recovery Factor was presented
4 in D. L. Babka's testimony in Docket Nos. 870001-EI and 880001-EI.
5 The methodology was the same in all cases and part of the
6 calculation included deferred capacity benefits associated with the
7 Martin coal units. The Martin coal units were deferred as a result
8 of the Project and the related UPS agreement with the Southern
9 Companies.

10

11 Q. When did capacity deferral benefits first appear in FPL's calculation
12 of net savings in an FPL Oil Backout filing?

13 A. The first time capacity deferral benefits were projected in an FPL
14 Oil Backout filing was in FPL's January, 1987 testimony for the
15 April, 1987 - September, 1987 recovery period in Docket
16 No. 870001-EI. The capacity deferral benefits were the result of
17 the deferral of Martin Coal Unit No. 3, which would have been
18 placed in service in June 1987, without the purchases from the
19 Southern Companies. Although the recognition of capacity deferral
20 benefits did not produce net savings in the projection of the April,
21 1987 - September, 1987 period, neither FIPUG or Public Counsel,
22 who were parties to the Docket, objected to FPL's recognition of
23 capacity deferral benefits in its calculation of net savings.

1 Q. Has FPL claimed any additional capacity deferral benefits since that
2 time?

3 A. Yes. The benefits of deferral of Martin Coal Unit No. 3 have
4 continued to appear in all subsequent FPL Oil Backout Cost
5 Recovery Factor filings. Without construction of the Project and
6 the UPS Agreement, Martin Coal Unit No. 4 would have come into
7 service in December of 1988. Consequently, FPL began to accrue
8 capacity deferral benefits for Martin Unit No. 4 in its October, 1988
9 through March, 1989 filing in Docket No. 880001-EI. This was also
10 supported in FPL's prefiled testimony. The resultant Levelized Oil
11 Backout Cost Recovery Factor of 0.886 cents/KWH for the period
12 October, 1988 - March, 1989 was approved without objection by
13 FIPUG or Public Counsel.

14

15 Q. Is FIPUG questioning in this proceeding issues previously raised
16 by FPL and decided by the Commission?

17 A. Yes. During 1987 and 1988, FPL presented the methodology and
18 underlying assumptions for its calculation of capacity deferral
19 benefits used in qualifying actual net benefits to be recovered
20 through the Oil Backout Cost Recovery Factor. This was
21 consistent with the Commission's directive in the original
22 certification proceeding that the proper measure of savings to be
23 recovered was to be determined "at such time as the deferred units
24 would have come on-line, absent the Oil Backout Project"
25 Even though FIPUG had notice as far back as 1982 and even though

1 FIPUG has been an active party in the Oil Backout proceedings
2 throughout 1987 and 1988, FIPUG waited until significant dollars of
3 actual net savings had been recovered before raising a challenge
4 in January, 1989.
5

6 Q. Was it appropriate for FPL and the Commission to include the
7 deferral of Martin Coal Unit Nos. 3 and 4 in the calculation of net
8 savings in these previous proceedings?

9 A. Yes. The Martin Coal Units were identified in the qualification
10 proceeding as the capacity additions which would have been
11 required if the Project had not been constructed and the power
12 purchases from the Southern Companies had not been made. The
13 construction of the Project and the purchases from Southern
14 Companies allowed the units to be deferred to the 1990's. This
15 deferral was recognized by the Commission in qualifying the Project
16 by including the units' capacity deferral benefit in the Cumulative
17 Present Value Test. In addition, the deferral of Martin Coal Unit
18 Nos. 3 and 4 was the basis for FIPUG's and Public Counsel's
19 argument in the certification proceeding that the primary purpose
20 of the Project was to meet future load growth. Thus, it appears
21 that at least in 1982, all the parties agreed that the Martin Coal
22 Units would be deferred by the Project and the UPS purchases.

1 Q. In its Petition, FIPUG contends that the capacity deferral benefits
2 used to calculate actual net savings are illusory, because the Martin
3 Units are not now part of FPL's expansion plan and have not been
4 since 1983. Please address this contention.

5 A. FIPUG's claim is based on faulty logic and erroneous impressions.
6 FIPUG maintains that because FPL has identified in its recent
7 generation expansion plans units other than the Martin Coal Units
8 as its next capacity additions, the Martin Units are "fictional".
9 The conclusion does not flow from the premise. This allegation
10 also shows a misunderstanding of the generation planning process
11 and how decisions to bring new capacity on line are made.

12
13 The ability to change the capacity type is an additional benefit
14 arising only because the Project and the UPS purchases deferred
15 the Martin Units. This is a distinct benefit over and above the
16 benefit associated with the deferral of the Martin Units. In
17 Mr. Scalf's testimony during the original qualification hearing, he
18 testified under cross examination: "It would be our hope that in
19 that time frame we might see some change in the commercial
20 availability of alternatives that may produce cheaper types of
21 construction." And he further stated:

22
23 I think there is significant progress being made in
24 research today in some of the coal conversion
25 technologies. To mention only one as looking promising

1 would be coal conversion and gasification which would
2 then be used in a combined cycle type plant, which
3 should have a much lower capital cost than the
4 conventional units that we see today.
5

6 It appears to me that Mr. Scaif recognized that the decision to
7 pursue the Project and the UPS purchases would result in the
8 deferral of the Martin Coal Units from 1987 and 1988 until 1992 and
9 1993. It also appears that Mr. Scaif recognized that another
10 potential benefit of deferring construction of the Martin Coal Units
11 out of the 1987-1988 time frame might be providing time for
12 technological advancements. Because of lower projected fuel
13 prices, FPL and its customers will be able to enjoy the fruits of
14 such advances by using less costly combined cycle technology in
15 FPL's next generating unit addition. However, the current
16 prospect that FPL will build a generating unit other than the Martin
17 Coal Units when it eventually undertakes capacity additions does
18 not change the fact that absent the Project and the UPS purchases,
19 the Martin Coal Units would have been built. Consequently, the
20 Martin Coal Units were the units deferred by the Project, and
21 taking advantage of this additional benefit of intervening
22 technological advances does not make the original units "mythical"
23 or make the capacity deferral benefits "illusory."

1 Q. Please clarify your assertion that FIPUG's allegations show a
2 misunderstanding of the generation planning process?

3 A. FIPUG has confused what FPL intends to do in the 1990's with what
4 FPL would have done to meet capacity in 1987, absent the Oil
5 Backout Project. The two cannot be compared.

6
7 In developing generation expansion plans, the need for new
8 capacity must be identified far enough in advance so that all
9 required activities, e.g., siting, licensing, design, engineering
10 and construction, can be performed to meet the required in-service
11 date. The amount of time required to perform these activities
12 establishes the lead time required between a decision to install a
13 new unit and its completion. For Martin Unit No. 3, the required
14 lead time was approximately eight years. This means that to meet
15 the in-service date of June, 1987, FPL would have had to begin
16 expenditures on the unit in 1980. Similarly, for Martin Unit No.
17 4, the required lead time was seven years. To meet a Martin Unit
18 No. 4 in-service date of December, 1988, expenditures by FPL
19 would have had to begin in 1982. If FPL had not committed to the
20 Project and the UPS purchases from Southern Companies, FPL
21 would have had to construct Martin Unit Nos. 3 and 4 and these
22 units would now be completed and in operation.

1 Q. Why do you believe these units would now be in operation, absent
2 the Project and UPS purchases from Southern?

3 A. FPL evaluates a number of generating unit alternatives when
4 considering capacity additions. In doing so, we look at total
5 expected life cycle costs on a present value basis. When Martin
6 Unit Nos. 3 and 4 were identified as the next unit additions in
7 FPL's generation expansion plans, these coal-fired units had been
8 evaluated against other options on a life cycle basis and found to
9 be less costly. The decision to construct the Project and enter the
10 UPS Agreement was made in 1981, thereby effectively deferring the
11 Martin Units at that point in time. The total life cycle cost
12 relationship between coal-fired units and other alternatives did
13 not change until 1985 planning studies were performed. These
14 studies were then focusing on capacity needs in the mid-1990's.
15 It was not until 1985 when FPL first reflected in its generation
16 expansion plan a combined cycle unit as the next planned
17 generating addition. Then, the total life cycle costs of a coal unit
18 and a combined cycle units were virtually identical.

19
20 I have no reason to believe anything but that the Martin Coal Units
21 would have or could have been built to meet FPL capacity needs in
22 1987 and 1988. It was not up until 1985, when fuel forecasts for
23 oil and gas showed a significant decline, that combined cycle
24 technology became attractive. Prior to this time, it would have
25 been more economical for FPL to have built its coal-fired units than

1 it would have been to switch to combined cycle technology. Other
2 factors demonstrate this to be the case. Several coal units were
3 certified by the Commission and/or constructed during the period
4 of 1980-1985. Moreover, as late as May, 1984, the Commission
5 determined that a coal-fired generating unit would be more
6 economical than a combined cycle unit and should be used as the
7 avoided unit for cogeneration pricing. Putting aside Fuel Use Act
8 uncertainty over the use of oil and gas as a primary fuel as well as
9 more limited natural gas supplies during this time period, simple
10 economics suggest that absent the UPS purchases, coal-fired
11 generation was the preferred generating alternative until, at least,
12 late 1985.

13
14 One other consideration must be mentioned. The project lead time
15 for a combined cycle unit during the 1980-1985 period was five to
16 seven years. Thus, to meet the 1987 and 1988 capacity needs
17 which would have existed without the UPS purchases, FPL would
18 have to have begun construction on a combined cycle unit (and
19 cancelled construction of the Martin Coal Units) in 1981 and 1982.
20 Of course, the Commission had already approved a 1982 generation
21 expansion plan in qualifying the Project in 1982. Even if combined
22 cycle technology had been more cost effective after 1982, project
23 lead time alone would have dictated the completion of the Martin
24 Coal Units to meet capacity needs in 1987 and 1988.

1 Q. FPL did in fact, change the type of unit it plans to build, as FIPUG
2 points out. Does this suggest that a different type of unit would
3 have replaced Martin 3 and 4?

4 A. No. In late 1985, FPL moved from a pulverized coal unit to a
5 combined cycle unit as its next capacity option to be added in the
6 mid-1990's. If we evaluate this decision and its impact on Martin
7 Unit Nos. 3 and 4, we need to examine the scenario with no power
8 purchases from Southern and then ask whether the Martin Units
9 would be replaced by combined cycle units. By the end of 1985,
10 Martin Unit No. 3 would have been approximately 78% complete and
11 Martin Unit No. 4 would have been approximately 47% complete. In
12 my opinion, the least cost capacity alternative at that point would
13 certainly have been completion of the units. Life cycle costs of
14 coal and combined cycle units to be placed in service in the mid-
15 1990's were virtually identical in 1985, and if the significant costs
16 of cancelling the Martin Units were recognized, as they should be,
17 in the cost of a combined cycle unit, the economic advantage of
18 completing the Martin Units is significant. In addition, new
19 combined cycle units begun in late 1985 would not have been
20 available to meet the Martin Unit No. 3 in-service date, since less
21 than a two year lead time would exist at that point. As previously
22 noted, five to seven years would normally be required. This also
23 means it is unlikely that Martin Unit No. 4 could have been
24 replaced by combined cycle units.

1 Q. What do you conclude about FIPUG's allegations concerning deferral
2 of the Martin Units?

3 A. FIPUG has attempted to infer from recent FPL generation expansion
4 plans that Martin Unit Nos. 3 and 4 were not deferred by the
5 Project. This is a fallacious argument which obscures the main
6 issue, which is what would FPL have done absent the power
7 purchases from Southern. The only way to address this issue is
8 to look at the facts as they existed when the original decisions on
9 the project were made. The deferral of Martin Unit Nos. 3 and 4
10 occurred when FPL decided to cease spending on the units. While
11 it is true that FPL's generating expansion plans have changed since
12 1982 and now show combined cycle units as the next planned
13 generating additions, this is a benefit directly attributable to the
14 deferral of the Martin Units, not a reason to assume that they were
15 never part of FPL's plans. The advanced technology combined
16 cycle and coal-gasification combined cycle units which are now part
17 of the FPL Generation Expansion Plans were not available as
18 alternatives to the Martin units. To suggest that the Martin Units
19 are fictional or that the Martin Units were not deferred because of
20 what FPL currently plans to do would be a gross misapplication of
21 fact.

1 Conclusions

2 **Q. Would you please summarize your conclusions concerning FIPUG's**
3 **petition?**

4 **A. I believe the FIPUG petition and supporting schedules are seriously**
5 **flawed for several reasons:**

6
7 • **FIPUG erroneously asserts that FPL's 500 KV project has**
8 **resulted in significant losses, when in fact, it has provided**
9 **significant fuel savings as well as total Project actual net**
10 **savings.**

11
12 • **FIPUG has misinterpreted and misapplied the Primary Purpose**
13 **Test, which was clearly defined by the Commission in its**
14 **calculation of project savings.**

15
16 • **FIPUG has engaged in an "apples and oranges" argument about**
17 **capacity deferral by comparing what FPL currently plans to do**
18 **with what would have been done in 1982 absent UPS purchases**
19 **from Southern.**

20
21 • **FIPUG has suggested that the original Project qualification**
22 **was based on FPL's fuel price projections alone. This was not**
23 **the case.**

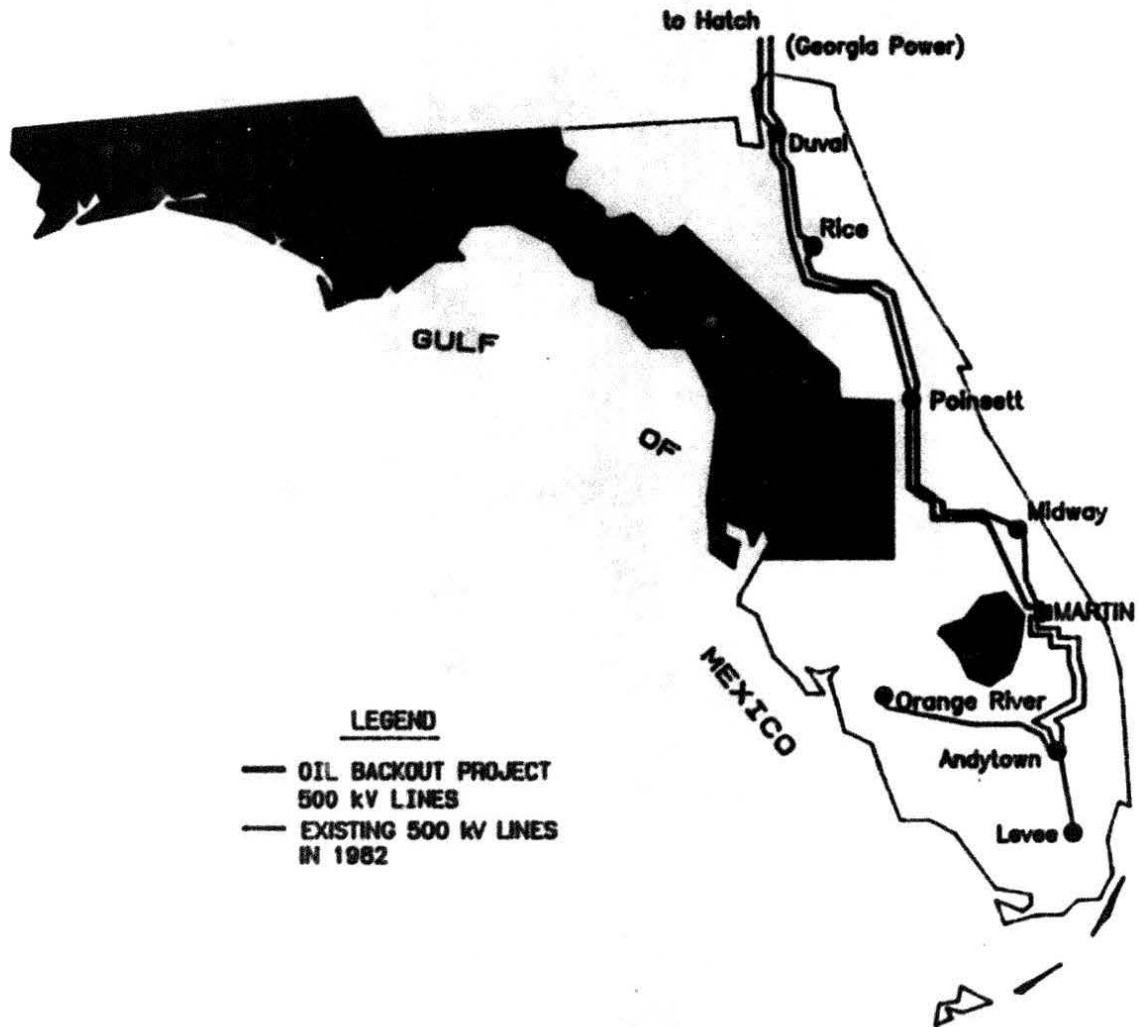
1 • FIPUG ignores the fact that since qualification of the FPL
2 Project, all cost recovery, including the net savings resulting
3 from the Project, has been subject to regular Commission
4 review. Application of the benefits of capacity deferral has
5 been accepted by the Commission, without objection, for nearly
6 two years.

7
8 For these reasons, I believe that the Commission should deny the
9 FIPUG Petition and continue to apply FPL's Oil Backout Cost
10 Recovery Factor, subject to regular review.

11
12 Q. Does this conclude your testimony?

13 A. Yes it does.

FPL'S 500 KV OIL BACKOUT PROJECT



Docket No. 890148-EI
FPL Witness: Samuel S. Waters
Exhibit No. _____
Document No. 1
July 13, 1989

**FPL Oil Backout Project
Scheduled Versus Actual In-Service Dates**

<u>Project Component</u>	<u>Scheduled In-Service Date</u>	<u>Actual In-Service Date</u>
<u>Phase 1</u>		
Florida portion of the Hatch-Duval 500 KV #1 Line	April, 1982	April, 1982
Florida portion of the Hatch-Duval 500 KV #2 line	September, 1982	August, 1982
500 KV and 230 KV improvements of Duval Substation	September, 1982	December, 1982
Second 500/230 KV auto-transformer at Duval Substation	January, 1983	December, 1982
<u>Phase 2</u>		
Martin-Poinsett 500 KV line	August, 1984	June, 1984
Duval-Rice-Poinsett 500 KV line	January, 1985	November, 1984
Duval-Poinsett 500 KV line	January, 1985	November, 1984
Poinsett 500/230 KV Substation	January, 1985	March, 1984
500 KV Improvements at Duval and Martin Plant Substations	January, 1985	March, 1983
Rice 500/230 KV Substation	January, 1985	May, 1983
<u>Phase 3</u>		
Midway-Poinsett 500 KV line	January, 1986	June, 1985
500 KV improvements at and Poinsett Substations	January, 1986	June, 1985

Docket No. 890148-EI
 FPL Witness: Samuel S. Waters
 Exhibit No. _____
 Document No. 2
 July 13, 1989

ATTACHMENT II

**FLORIDA POWER & LIGHT COMPANY
500 kV Transmission Project**

Comparative Analysis of Base Case versus Coal-By-Wire Case
Expected Savings Within First Ten Years of Commercial Operation
Based on FCG Oil Price Forecast

	<u>Totals</u> <u>(\$000)</u>	<u>Present</u> <u>Value</u> <u>(\$000)</u>	<u>Howard</u> <u>Doc. No. 1</u> <u>Source</u>	
A	<u>Fuel Savings</u>			
B	Direct Fuel Savings	\$3,785,430	\$1,766,731	Line E-J
C	Foregone Deferred Capacity Fuel Savings	7,138,125	740,617	Line Y-W
D	Fuel Related Savings	(250,850)	(233,269)	Line F-G-H-I
E	Total Fuel Savings (B-C+D)	\$1,396,455	\$ 792,845	
F	<u>Capacity Savings</u>			
G	Deferred Capacity Carrying Costs	\$5,533,016	\$1,974,409	Line V
H	Capacity Cost "UPS"	3,202,974	1,398,710	Line M
I	Wheeling Cost "UPS"	278,916	121,739	Line N
J	Total Capacity Savings (G-H-I)	\$2,031,126	\$ 453,960	
K	<u>Transmission Project Costs</u>			
L	Transmission Project Revenue Requirements	\$ 845,932	\$ 393,542	Line O
M	Transmission Project O&M	4,652	2,069	Line P
N	Total Transmission Project Costs (L+M)	\$ 850,584	\$ 395,611	
O	Total Net Benefits (E+J-N)	\$2,596,997	\$ 851,194	Line B'

Docket No. 820155-EU
FPL Witness: J.L. Howard
Late Filed Exhibit No. 15(j)
Page 1 of 1

Docket No. 890148-EI
FPL Witness: Samuel S. Waters
Exhibit No. _____
Document No. 3
July 13, 1989
Page 1 of 2

FLORIDA POWER & LIGHT COMPANY
500 kV Transmission Project

Cumulative Present Value of Expected Savings Within the First Ten Years of Commercial Operation
Based on FCG Oil Price Forecast

A	Year	(1) 0-12 1982	(2) 1983	(3) 1984	(4) 1985	(5) 1986	(6) 1987	(7) 1988	(8) 1989	(9) 1990	(10) 1991	(11) 1-3 1992	(12) Total
B	CBW Energy (\$/MWh)	2,052	6,395	6,662	13,377	13,293	13,931	13,996	16,169	16,303	16,304	3,096	113,988
C	Barrels Saved (000)	3,364	10,011	10,009	21,682	21,797	22,070	22,904	23,225	23,648	23,666	2,731	190,163
D	Composite Oil Price (\$/Bbl)	26.48	27.97	32.66	37.38	41.70	46.26	52.67	58.12	63.82	69.37	76.70	9,627,332
E	Oil Cost Savings (000)	89,732	302,304	333,639	807,683	908,726	1,037,966	1,202,726	1,330,011	1,496,951	1,627,836	628,564	9,627,332
F	Splending Res. Savings (000)	4,206	8,087	11,641	12,104	14,392	13,789	19,950	32,990	33,972	32,733	-	169,686
G	Energy Cost "E" (000)	37,636	113,670	12,933	47,000	31,087	-	-	-	-	-	-	379,666
H	Capacity Cost "E" (000)	13,203	29,030	11,772	11,772	11,772	-	-	-	-	-	-	79,931
I	Winding Cost "E" (000)	3,069	3,960	2,376	2,376	2,376	-	-	-	-	-	-	16,137
J	Energy Cost "UPS" (000)	-	94,737	191,312	492,960	344,074	682,762	770,430	841,922	926,977	1,019,729	276,219	3,942,102
K	Subtotal (E-F-G-H-I-J) (000)	18,228	64,894	100,063	263,399	344,239	390,993	632,030	541,079	605,446	630,040	152,363	3,336,300
L	Subtotal (\$/kWh) (000)	.888	.704	1.642	2.014	2.764	2.603	3.230	3.219	4.233	4.337	4.338	3.067
M	Capacity Cost "UPS" (000)	-	61,132	109,278	277,236	273,748	393,940	363,680	363,200	317,920	339,200	146,340	3,202,970
N	Winding Cost "UPS" (000)	-	4,994	8,990	24,980	27,132	32,800	36,000	39,000	47,320	47,320	13,920	278,016
O	Transmission Project Revenue Req. (000)	3,664	7,669	17,688	116,635	129,704	122,378	113,133	100,317	107,287	99,136	23,900	843,932
P	Transmission Project O&M (000)	44	64	137	614	523	563	685	740	751	751	202	4,632
Q	Subtotal (M-N-O-P) (000)	3,708	77,139	136,073	418,783	411,127	510,864	517,430	440,066	464,156	406,707	178,362	4,312,174
R	Subtotal (\$/kWh) (000)	0.181	1.109	2.049	2.104	1.243	1.949	1.600	1.682	1.604	0.759	1.082	2.733
S	Unit Power Purchase (MW)	-	300	630	1,700	1,700	2,000	2,000	2,000	2,000	2,000	2,000	2,000
T	Schedule "E" (MW) (000)	200/330	300	300	300	300	-	-	-	-	-	-	
U	Deferred Generation Capacity (MW)	-	-	-	-	-	700	1,400	1,000	2,100	2,000	2,100	2,100
V	Deferred Capacity Carrying Charges (000)	-	-	-	-	-	346,332	605,064	973,125	1,489,420	1,643,274	1,643,274	3,033,767
W	Deferred Capacity Fuel Cost (000)	-	-	-	-	-	103,828	207,656	472,363	749,382	829,137	216,633	2,376,217
X	Total Cost (V+W) (000)	-	-	-	-	-	450,160	812,720	1,445,488	2,438,802	2,472,411	510,200	5,000,213
Y	Fuel Dispatchment Benefits (000)	-	-	-	-	-	191,487	343,267	642,367	1,146,875	1,433,352	362,044	4,716,362
Z	Net Avoided Cost (X-Y) (000)	-	-	-	-	-	258,673	469,453	803,121	1,291,927	1,039,059	158,156	3,984,851
A'	Net Avoided Cost (\$/kWh) (000)	-	-	-	-	-	1.367	1.383	1.644	1.683	1.632	1.046	2.987
B'	Total Net Benefits (X-Z) (000)	16,320	(6,263)	(27,030)	(131,386)	(116,848)	108,619	362,905	691,734	1,046,217	743,192	169,339	2,396,997
C'	Net Benefits Present Value (000)	13,748	(6,474)	(19,304)	(74,993)	(63,399)	69,529	159,043	190,717	337,016	223,728	63,993	1,111,111
D'	Cumulative Present Value (000)	13,748	6,794	(12,510)	(109,733)	(173,132)	(123,303)	33,740	226,657	361,673	585,201	649,194	2,222,222
E'	Total Net Benefit (\$/kWh) (000)	0.306	(0.123)	(0.487)	(1.164)	(0.879)	0.721	2.293	3.671	7.273	3.192	6.372	2.229

(i) Does not include 100 MWs of Schedule E which was in effect prior to the 500 kV Transmission Project.

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FLORIDA POWER AND LIGHT COMPANY

500 KV Transmission Project
 Comparative Analysis Of Base Case Versus Coal-By-Wire Case
Expected Savings Within First Ten Years Of Commercial Operation

	<u>Totals</u> (3000)	<u>Present^{2/}</u> <u>Value</u> (3000)	<u>Source^{1/}</u>
A Fuel Savings			
B Direct Fuel Savings	1,340,852	1,010,158	Line D-1
C Foregone Deferred Capacity Fuel Savings	796,424	316,125	Line T-5
D Fuel Related Savings	<u>(393,121)</u>	<u>(277,265)</u>	Line E-F-G-H
E Total Fuel Savings (B-C+D)	651,307	416,768	
F Capacity Savings			
G Deferred Capacity Carrying Costs	3,469,030	1,411,829	Line R
H Capacity Cost "UPS"	2,571,802	1,280,748	Line K
I Wheeling Cost "UPS" (INCLUDED IN LINE H)	----	----	
J Total Capacity Savings (G-H-I)	697,228	131,081	
K Transmission Project Costs			
L Transmission Project Revenue Requirements	290,095	165,081	Line L
M Transmission Project O&M	<u>5,659</u>	<u>2,820</u>	Line M
N Total Transmission Project Costs (L+M)	295,754	167,901	
O Total Net Benefits (E+J-N)	1,252,781	379,948	
P Primary Purpose Test (B-C+D-N) (c)	355,553	248,867	

Notes:

- ^{1/} Source is the attached page 2 of 2 of Exhibit SSW-4, with actual data through May, 1989.
- ^{2/} Discount rate = 11.4% each year.
- ^{3/} Primary Purpose Test is defined as fuel savings less fuel costs exceeding transmission revenue requirements over the ten year analysis period.

Docket No. 890148-EI
 FPL Witness: Samuel S. Waters
 Exhibit No. _____
 Document No. 4
 July 13, 1989
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FLORIDA POWER AND LIGHT COMPANY
500 KV Transmission Project

CUMULATIVE PRESENT VALUE OF PROJECT SAVINGS FOR THE FIRST
TEN YEARS OF COMMERCIAL
DISCOUNTED TO 1982

A	YEAR		OCT-DEC ^{1/}								JAN-MAY		TOTAL	
			1982	1983	1984	1985	1986	1987	1988	1989 ^{2/}	1990	1991		1992
B	CRW ENERGY	(MWH)	1,196	5,364	7,587	15,170	8,984	16,378	11,212	17,614	17,764	17,710	3,045	122,823
C	OIL BARRELS SAVED	(BBL 000)	1,921	8,616	12,187	24,368	14,430	25,635	17,549	27,569	27,804	27,719	6,019	193,816
D	AVOIDED FUEL SAVINGS	(\$ 000)	52,506	227,359	356,716	653,039	282,841	530,876	294,864	568,264	572,673	647,025	124,133	4,310,295
E	SPINNING RESERVE SAVINGS	(\$ 000)	1,006	4,328	4,586	12,176	12,071	9,846	5,643	7,020	4,899	3,505	1,542	66,622
F	ENERGY COST "E"	(\$ 000)	26,469	39,819	40,916	41,563	27,200	0	0	0	0	0	0	175,967
G	ENERGY COST "C"	(\$ 000)	0	47,486	42,054	25,746	616	24,842	8,130	26,896	16,062	17,096	2,690	211,619
H	CAPACITY COST "E"	(\$ 000)	9,916	15,184	16,144	15,612	15,301	0	0	0	0	0	0	72,157
I	ENERGY COST "UPS"	(\$ 000)	0	70,413	143,345	363,994	214,447	349,738	244,699	333,873	340,807	337,241	70,886	2,469,443
J	NET ENERGY SAVINGS (D+E-F-G-H-I)	(\$ 000)	17,127	58,785	118,843	218,300	37,348	166,142	47,678	214,515	220,703	296,193	52,099	1,447,732
K	CAPACITY COST "UPS"	(\$ 000)	0	66,655	115,460	299,254	277,399	313,837	291,328	347,863	376,136	386,364	98,306	2,571,802
L	TRANS. PROJECT REVENUE REQ.	(\$ 000)	578	3,408	16,910	64,881	67,268	55,251	40,576	18,904	9,227	10,298	2,793	290,095
M	TRANS. PROJECT O&M	(\$ 000)	8	180	280	385	795	726	720	716	791	839	219	5,659
N	NET CAPACITY COSTS (K+L+M)	(\$ 000)	586	70,243	132,650	364,520	345,462	369,014	332,624	367,484	386,154	397,501	101,318	2,867,556
O	UNIT POWER PURCHASE	(MW)	0	353	661	1,700	1,700	2,000	2,000	2,000	2,000	2,000	2,000	--
P	SCHEDULE "E"	(MW)	550	200	200	200	200	0	0	0	0	0	0	--
Q	DEFERRED GEN. CAPACITY	(MW)	0	0	0	0	0	700	1,400	1,400	2,100	2,100	2,100	--
R	DEF. CAPACITY CARRYING CHARGES	(\$ 000)	0	0	0	0	0	264,462	435,903	690,741	948,253	922,318	217,353	3,469,030
S	DEF. CAPACITY FUEL COST	(\$ 000)	0	0	0	0	0	45,144	82,740	146,185	218,284	224,101	57,301	773,755
T	FUEL DISPLACEMENT BENEFITS	(\$ 000)	0	0	0	0	0	99,929	129,499	304,175	437,284	495,919	103,373	1,570,179
U	NET DEFERRAL SAVINGS (R+S-T)	(\$ 000)	0	0	0	0	0	209,677	389,144	522,751	729,253	650,500	171,282	2,672,606
V	PV OF NET DEFERRAL SAVINGS	(\$ 000)	0	0	0	0	0	112,709	187,774	226,430	283,552	227,047	58,191	1,095,704
W	NET FUEL SAVINGS (J+S-T)	(\$ 000)	17,127	58,785	118,843	218,300	37,348	111,357	919	56,525	1,703	24,375	6,027	651,308
X	PV OF NET FUEL SAVINGS	(\$ 000)	15,795	48,665	88,316	145,624	22,365	59,859	443	24,484	662	8,508	2,048	416,768
Y	TOTAL NET BENEFITS (J-W+U)	(\$ 000)	16,541	(11,458)	(13,807)	(146,220)	(308,114)	6,804	104,198	369,782	563,802	549,192	122,063	1,252,782
Z	PRESENT VALUE OF NET BENEFITS FOR THE PROJECT	(\$ 000)	15,254	(9,485)	(10,260)	(97,541)	(184,505)	3,657	50,279	160,171	219,220	191,687	41,470	379,548

^{1/} Includes costs and savings for the period 10/82 through 12/82 only. Commercial operation for this project was 4/82; however, FPL did not begin recording actual data in this format until 10/82, when the Oil-Backout factor went into effect. For the period 4/82 through 9/82, customer savings through the fuel adjustment factor were an additional amount of approximately \$17 million.

^{2/} Includes actual data for Jan-May 1989 plus estimates for Jun-Dec 1989.

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Petition of the Florida)
Industrial Power Users Group)
to Discontinue Florida Power) Docket No. 890148-EI
& Light Company's Oil Backout)
Cost Recovery Factor)

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that on the 13th day of July, 1989, a true and correct copy of Florida Power & Light Company's Testimony and Exhibits of S. S. Waters in Docket No. 890148-EI was served by hand delivery on the following persons:

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FLORIDA POWER & LIGHT COMPANY
300 kV Transmission Project

Cumulative Present Value of Expected Savings Within the First Ten Years of Commercial Operation
Based on FCG Oil Price Forecast

A	Year	(1) 0-12 1987	(2) 1987	(3) 1988	(4) 1989	(5) 1990	(6) 1991	(7) 1992	(8) 1993	(9) 1994	(10) 1995	(11) 1-3 1996	(12) Total
B	CBF Energy (\$/MWH)	2,052	4,395	4,602	11,177	11,293	11,958	11,996	14,149	14,303	14,344	1,096	113,988
C	Barrels Saved (000)	1,364	10,811	10,889	21,682	21,792	22,870	22,904	23,228	23,048	23,664	2,731	180,143
D	Composite Oil Price (\$/BBL)	26.48	27.57	32.46	37.38	41.70	46.26	52.02	58.17	63.82	69.37	74.78	
E	Oil Cost Savings (000)	89,732	302,304	351,639	807,083	908,724	1,057,964	1,202,724	1,330,011	1,496,051	1,627,836	628,164	9,627,332
F	Sending Bus Savings (000)	4,206	8,087	11,061	12,104	14,192	13,789	19,950	32,990	33,972	12,733	-	169,884
G	Energy Cost "E" (000)	37,636	113,670	123,993	47,000	31,887	-	-	-	-	-	-	320,444
H	Capacity Cost "E" (000)	11,205	29,030	11,772	11,772	11,772	-	-	-	-	-	-	79,931
I	Wholesale Cost "E" (000)	1,069	3,940	2,376	2,376	2,376	-	-	-	-	-	-	14,137
J	Energy Cost "UPS" (000)	-	94,737	191,312	492,960	544,879	682,762	770,630	841,322	936,977	1,019,729	376,219	3,062,102
K	Subtotal (B-F-J-I-H)	18,225	64,894	109,063	243,399	344,259	388,993	432,830	541,879	603,006	630,040	152,363	1,530,100
L	Subtotal (C/K/W)	888	364	1,682	2,014	2,164	2,683	3,210	3,819	4,371	4,337	6,126	3,007
M	Capacity Cost "UPS" (000)	-	61,132	109,278	277,236	273,768	393,940	363,680	303,280	317,920	339,280	140,340	3,202,970
N	Wholesale Cost "UPS" (000)	-	4,994	8,990	24,400	27,132	32,800	34,000	47,320	47,320	57,320	11,920	278,064
O	Transmission Project Revenue Req. (000)	3,644	7,049	17,608	114,633	129,700	172,378	113,133	101,316	101,887	99,136	23,900	863,932
P	Transmission Project O&M (000)	40	40	137	614	323	363	683	650	699	731	202	4,632
Q	Subtotal (M-N-O-P)	3,708	73,130	176,873	414,783	414,127	516,841	517,620	612,886	644,186	686,707	178,162	4,312,674
R	Subtotal (C/K/W)	0.181	1.109	2.049	2.104	2.264	2.949	3.040	4.082	4.604	4.757	2.102	3.733
S	Unit Power Purchase (MWH)	-	300	630	1,700	1,700	2,000	2,000	2,000	2,000	2,000	2,000	2,000
T	Schedule "E" (1) (MWH)	200/330	300	300	300	300	-	-	-	-	-	-	
U	Deferred Generation Capacity (000)	-	-	-	-	-	700	1,400	1,000	2,100	2,000	2,100	2,100
V	Deferred Capacity Carrying Charges (000)	-	-	-	-	-	304,336	603,664	973,125	1,409,520	1,643,274	2,013,767	3,331,016
W	Deferred Capacity Fuel Cost (000)	-	-	-	-	-	103,828	207,656	472,203	749,382	829,137	1,043,633	2,376,217
X	Total Cost (V-W) (000)	-	-	-	-	-	408,164	811,272	1,045,328	1,409,520	1,643,274	2,042,611	3,809,233
Y	Fuel Dispatchment Benefits (000)	-	-	-	-	-	191,407	363,207	842,367	1,306,875	1,633,132	2,022,044	3,714,362
Z	Net Avoided Cost (X-Y) (000)	-	-	-	-	-	216,757	448,065	202,961	93,645	1,096,939	869,899	173,356
A'	Net Avoided Cost (C/K/W)	-	-	-	-	-	1.867	3.203	0.164	0.404	0.432	1.016	2.927
B'	Total Net Benefits (K-Q-Z) (000)	14,320	8,263	37,030	111,306	116,868	106,619	36,205	99,734	1,046,217	743,192	149,339	2,306,999
C'	Net Benefits Present Value (000)	13,246	6,674	19,314	76,993	85,399	49,829	139,563	190,717	337,866	223,728	63,993	
D'	Cumulative Present Value (000)	13,246	4,574	112,708	110,733	117,132	123,303	31,740	276,637	301,673	387,201	631,194	
E'	Total Net Benefit (C'/K/W)	0.308	0.173	0.607	1.164	0.879	0.721	2.393	1.471	7.273	3.192	6.272	2.179

(1) Does not include 100 MWs of Schedule E which was in effect prior to the 300 kV Transmission Project.

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FPL Witness: Samuel S. Waters
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Page 2 of 2

FLORIDA POWER AND LIGHT COMPANY

500 KV Transmission Project
 Comparative Analysis Of Base Case Versus Coal-By-Wire Case
Expected Savings Within First Ten Years Of Commercial Operation

	<u>Totals</u> (<u>\$000</u>)	<u>Present^{2/}</u> <u>Value</u> (<u>\$000</u>)	<u>Source^{1/}</u>
A Fuel Savings			
B Direct Fuel Savings	1,840,852	1,010,158	Line D-I
C Foregone Deferred Capacity Fuel Savings	96,424	316,125	Line T-S
D Fuel Related Savings	<u>(300,121)</u>	<u>(277,265)</u>	Line E-F-G-H
E Total Fuel Savings (B-C+D)	651,307	416,768	
F Capacity Savings			
G Deferred Capacity Carrying Costs	3,469,030	1,411,829	Line R
H Capacity Cost "UPS"	2,571,802	1,280,748	Line K
I Wheeling Cost "UPS" (INCLUDED IN LINE H)	<u>-----</u>	<u>-----</u>	
J Total Capacity Savings (G-H-I)	897,228	131,081	
K Transmission Project Costs			
L Transmission Project Revenue Requirements	290,095	165,081	Line L
M Transmission Project O&M	<u>5,659</u>	<u>2,820</u>	Line M
N Total Transmission Project Costs (L+M)	295,754	167,901	
O Total Net Benefits (E+J-N)	1,252,781	379,948	
P Primary Purpose Test (B-C+D-N) (c)	355,553	248,867	

Notes:

- ^{1/} Source is the attached page 2 of 2 of Exhibit SSW-4, with actual data through May, 1989.
- ^{2/} Discount rate = 11.4% each year.
- ^{3/} Primary Purpose Test is defined as fuel savings less fuel costs exceeding transmission revenue requirements over the ten year analysis period.

Docket No. 890148-EI
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 Exhibit No. _____
 Document No. 4
 July 13, 1989
 Page 1 of 2

FLORIDA POWER AND LIGHT COMPANY
500 KV Transmission Project

CUMULATIVE PRESENT VALUE OF PROJECT SAVINGS FOR THE FIRST
TEN YEARS OF COMMERCIAL
DISCOUNTED TO 1982

A	YEAR		OCT-DEC ^{1/}							JAN-MAY			TOTAL	
			1982	1983	1984	1985	1986	1987	1988	1989 ^{2/}	1990	1991		1992
B	CBM ENERGY	(MM)	1,196	5,364	7,587	15,170	8,904	16,378	11,212	17,614	17,764	17,710	3,845	122,823
C	OIL BARRELS SAVED	(BBL 000)	1,921	8,616	12,187	24,368	14,430	25,635	17,549	27,569	27,804	27,719	6,019	193,816
D	AVOIDED FUEL SAVINGS	(\$ 000)	52,506	227,359	356,716	653,039	282,841	530,876	294,864	568,264	572,673	647,025	124,133	4,310,295
E	SPINNING RESERVE SAVINGS	(\$ 000)	1,006	4,328	4,586	12,176	12,071	9,846	5,643	7,020	4,899	3,505	1,542	66,622
F	ENERGY COST "E"	(\$ 000)	26,469	39,819	40,916	41,563	27,200	0	0	0	0	0	0	175,967
G	ENERGY COST "C"	(\$ 000)	0	47,486	42,054	25,746	616	24,842	8,130	26,898	16,062	17,098	2,690	211,619
H	CAPACITY COST "E"	(\$ 000)	9,916	15,184	16,144	15,612	15,301	0	0	0	0	0	0	72,157
I	ENERGY COST "UPS"	(\$ 000)	0	70,413	143,345	363,994	214,447	349,738	244,699	333,873	340,807	337,241	70,886	2,469,443
J	NET ENERGY SAVINGS (D+E-F-G-H-I)	(\$ 000)	17,127	58,785	118,843	218,300	37,348	166,142	47,678	214,515	220,703	296,193	52,099	1,447,734
K	CAPACITY COST "UPS"	(\$ 000)	0	66,855	115,460	299,254	277,399	313,037	291,328	347,863	376,136	386,364	98,306	2,571,802
L	TRANS. PROJECT REVENUE REQ.	(\$ 000)	578	3,408	16,910	64,881	67,268	55,251	40,576	18,904	9,227	10,298	2,793	290,095
M	TRANS. PROJECT O&M	(\$ 000)	8	180	280	385	795	726	720	716	791	839	219	5,659
N	NET CAPACITY COSTS (K+L+M)	(\$ 000)	586	70,243	132,650	364,520	345,462	369,014	332,624	367,484	386,154	397,501	101,318	2,867,556
O	UNIT POWER PURCHASE	(MW)	0	353	661	1,700	1,700	2,000	2,000	2,000	2,000	2,000	2,000	--
P	SCHEDULE "E"	(MW)	550	200	200	200	200	0	0	0	0	0	0	--
Q	DEFERRED GEN. CAPACITY	(MW)	0	0	0	0	0	700	1,400	1,400	2,100	2,100	2,100	--
R	DEF. CAPACITY CARRYING CHARGES	(\$ 000)	0	0	0	0	0	264,482	435,903	580,741	948,253	922,318	217,353	3,469,030
S	DEF. CAPACITY FUEL COST	(\$ 000)	0	0	0	0	0	45,144	82,740	146,185	218,284	224,101	57,301	773,755
T	FUEL DISPLACEMENT BENEFITS	(\$ 000)	0	0	0	0	0	99,929	129,499	304,175	437,284	495,919	103,373	1,570,179
U	NET DEFERRAL SAVINGS (R+S-T)	(\$ 000)	0	0	0	0	0	209,677	389,144	522,751	729,253	650,500	171,282	2,672,606
V	PV OF NET DEFERRAL SAVINGS	(\$ 000)	0	0	0	0	0	112,709	187,174	226,430	283,552	227,047	58,191	1,095,704
W	NET FUEL SAVINGS (J+S-T)	(\$ 000)	17,127	58,785	118,843	218,300	37,348	111,357	917	56,525	1,703	24,375	6,027	651,308
X	PV OF NET FUEL SAVINGS	(\$ 000)	15,795	48,665	88,316	145,624	22,365	59,859	443	24,484	662	8,508	2,048	416,768
Y	TOTAL NET BENEFITS (J-W+U)	(\$ 000)	16,541	(11,458)	(13,807)	(146,220)	(308,114)	6,804	104,198	369,782	563,802	549,192	122,063	1,252,782
Z	PRESENT VALUE OF NET BENEFITS FOR THE PROJECT	(\$ 000)	15,254	(9,485)	(10,260)	(97,541)	(184,505)	3,657	58,279	160,171	219,220	191,687	41,470	379,948

^{1/} Includes costs and savings for the period 10/82 through 12/82 only. Commercial operation for this project was 4/82; however, FPL did not begin recording actual data in this format until 10/82, when the Oil-Backout factor went into effect. For the period 4/82 through 9/82, customer savings through the fuel adjustment factor were an additional amount of approximately \$17 million.

^{2/} Includes actual data for Jan-May 1989 plus estimates for Jun-Dec 1989.

FLORIDA POWER AND LIGHT COMPANY
500 KV Transmission Project

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TEN YEARS OF COMMERCIAL
DISCOUNTED TO 1982

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BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Petition of the Florida)
Industrial Power Users Group)
to Discontinue Florida Power) Docket No. 890148-EI
& Light Company's Oil Backout)
Cost Recovery Factor)

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that on the 13th day of July, 1989, a true and correct copy of Florida Power & Light Company's Testimony and Exhibits of S. S. Waters in Docket No. 890148-EI was served by hand delivery on the following persons:

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