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November 21, 1990

Mr. Steve C. Tribble  
Director, Records and Reporting  
Florida Public Service Commission  
101 East Gaines Street  
Tallahassee, Florida 32301

PACKAGE 1 OF 2.

Re: Docket No. 900796-FI

Dear Mr. Tribble:

A member of your staff called and advised me that the testimony of H.G. "Pat" Wells that I forwarded for filing did not have an appropriate binding offset. I apologize for this oversight on my part. Enclosed for filing are sixteen (16) copies of the Testimony of H. G. "Pat" Wells for the Coalition of Local Governments, including Wells Document 1 in the above-referenced proceeding.

Thank you for your assistance in this matter.

Respectfully submitted,



Frederick J. Murrell

Attorney for the  
Coalition of Local Governments

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DOCUMENT NUMBER-DATE  
10527 NOV 26 1990  
FPSC-RECORDS/REPORTING

**BEFORE THE  
FLORIDA PUBLIC SERVICE COMMISSION**

In re: Petition of Florida Power )  
and Light Company For the Inclusion )  
Scherer Unit No. 4 Purchase in Rate )  
Base, Including an Acquisition )  
Adjustment. )

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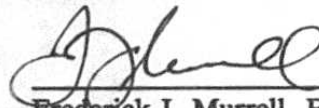
Docket No. 900796-EI

Submitted for filing:  
November 20, 1990

**NOTICE OF FILING TESTIMONY FOR COALITION OF LOCAL GOVERNMENTS**

The Coalition of Local Governments files the testimony of H. G. "Pat" Wells in this docket.

Respectfully submitted this 20th day of November, 1990.



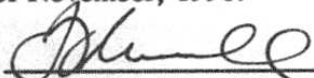
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**CERTIFICATE OF SERVICE**

I Frederick J. Murrell, hereby certify that I have this day served the foregoing Notice of Filing Testimony for Coalition of Local Governments by mailing it first-class, postage prepaid to parties on the service list shown below.

Dated at Bradenton, Florida this 20th day of November, 1990.

  
Frederick J. Murrell, Esquire

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**BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION**

**COALITION OF LOCAL GOVERNMENTS**

**TESTIMONY OF H. G. "PAT" WELLS**

**DOCKET NO. 900796**

**NOVEMBER 20, 1990**

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

2 **A. My name is H. G. "Pat" Wells. I am Director of the Coalition of Local Governments.**

3 **Our address is Post Office Box 4748, Clearwater, Florida 34618.**

4

5 **Q. Please summarize your background and experience.**

6 **A. My career spans a period of 40 years and includes a variety of experience including**

7 **heavy construction, engineering, manufacturing, mining, transportation, and utility**

8 **planning. More particularly I was employed for approximately 13 years by Florida**

9 **Power Corporation of St. Petersburg, Florida. During that period I held a variety of**

10 **positions, including Transmission Engineering, System Planning, Computer Services,**

11 **Electric Rates, Budgeting and Corporate Planning. During that time I served on a**

12 **number of industry committees and associations, most notably as Chairman of the Florida**

13 **Operating Committee during the mid-70's. This committee coordinated the planning and**

14 **operation of the electric grid and power supply for the state of Florida, and was later**

15 **replaced by the current Florida Electric Power Coordinating Group. During those days,**

16 **planning was made somewhat more difficult by the fact that our electric ties to Alabama**

17 **and Georgia were so weak that a disturbance in Florida resulted in a separation of the**

18 **Florida grid from the rest of the nation. While with Florida Power Corporation I was**

1 responsible for the company's pioneering efforts in the probabilistic modeling of electric  
2 power supply. At the end of that period, I was made President and Chief Executive  
3 Officer of Electric Fuels Corporation, which originally was a subsidiary of Florida Power  
4 Corporation, later becoming an affiliated company owned by Florida Progress  
5 Corporation, the holding company which owns Florida Power Corporation. While with  
6 Electric Fuels Corporation we started from the position of being the highest cost coal  
7 supplier in Florida and progressively improved to become among the lowest cost  
8 suppliers by the end of my tenure at Electric Fuels in 1987.

9  
10 Q. What is the purpose of your testimony?

11 A. The purpose of my testimony is to examine the Florida Power & Light ("FPL") system  
12 with an emphasis on its demand and energy requirements, its need for additional base  
13 load generation and its expected requirements in the near term. In addition, I will  
14 examine FPL's rather unique RFP process, some critical assumptions FPL made in its  
15 analysis of the proposals, and its final decision leading to the petition before the  
16 Commission. During my examination I will show that FPL has not yet instituted  
17 sufficient incentives or demand side management particularly toward shaping its load  
18 curves, both from a demand and energy perspective. I will also show that a critical  
19 assumption in FPL's analysis was the differential delivered cost of coal to plant Scherer  
20 and the Martin site in Florida. I will discuss the location of the Scherer Plant on the  
21 Norfolk Southern Rail System and its probable long term impact on coal prices. I will  
22 also point out some potential difficulties in the design of the Scherer Plant itself.  
23 Ultimately, I will show that FPL's petition should be denied at this time. My testimony  
24 is offered on behalf of the Coalition of Local Governments, which is an association

1 representing local government entities which are retail customers of Florida Power &  
2 Light Company ("FPL"), including the City of Daytona Beach Shores, Florida, the City  
3 of Hialeah Gardens, Florida, the City of South Daytona, Florida, the city of Stuart,  
4 Florida, the city of Ft. Myers, Florida and Union County, Florida.  
5

6 **Q. Please provide an overview of the FPL system.**

7 **A. FPL is by far the largest electric utility system in Florida, accounting for almost half of**  
8 **the total electric retail sales in the state. FPL has been a pioneer in establishing gas as**  
9 **a fuel in Florida and in providing incentives for gas transmission capability into Florida.**  
10 **FPL has also pioneered in the use of nuclear energy to produce power in the state. Coal**  
11 **is notably absent, however, on the FPL system. Instead, FPL has turned to the**  
12 **alternative of purchased power for most of its coal requirements. The company's only**  
13 **ownership position in a coal fired facility is in participation with the Jacksonville Electric**  
14 **Authority at the St. Johns River Power Park, which consists of two large coal fired units**  
15 **near Jacksonville. For the past two years, FPL has had the highest average cost per**  
16 **megawatt hour sold at retail among the six largest retail electric suppliers in Florida. In**  
17 **the future, FPL will need to add generating capacity. In order to increase its fuel**  
18 **diversity, FPL needs to include coal as a fuel in its future plans. Since the deregulation**  
19 **of the gas industry, FPL should also consider other pioneering efforts with that fuel, such**  
20 **as incentives for further increasing gas transmission capacity into Florida and the**  
21 **purchase of gas at the well head or possibly even exploring for gas for its own**  
22 **account.**  
23



1 Q. Have you examined Florida Power & Light Company's load and capacity status?

2 A. Yes, I have.

3

4 Q. Would you please explain your findings?

5 A. I have started by analyzing FPL's load duration curve for the test year 1990 submitted  
6 under Docket 900038 EI. Upon that load curve I have superimposed the existing base  
7 load generation. Additionally I have superimposed the coal by wire purchases or unit  
8 power contracts (UPCs) as reported by FPL. While this is a simple method, it provides  
9 a very good check of the more sophisticated loss of load probability studies customarily  
10 used in system planning. From this data one can readily see that FPL is long on base  
11 load and that for 1990 FPL had more than adequate peaking capacity to serve the peak  
12 load, since the intercept of the UPC and base load generation is less than 10% by significant  
13 margin. In addition, I have examined the daily system loads with particular emphasis  
14 on the heavy usage times during summer peaks. The FPL daily load curve is one of the  
15 most severe of any electric system in the world. In 1990 this daily load curve peaks at  
16 around 12,000 megawatts with a minimum slightly over 6,000 megawatts. This means  
17 the FPL's daily operation involved bringing on-line about 6,000 megawatts from 5  
18 o'clock in the morning to 6 o'clock at night. In other words, FPL is bringing on the  
19 equivalent of a 500 megawatt unit almost every single hour. From a system operation  
20 standpoint, this is a difficult task indeed. This leads me to immediately examine the  
21 incentives the FPL has provided its customers to move load from the peak hours to off  
22 peak hours. In recent years new technology has been introduced as well as  
23 improvements in old technology which allow effective thermal storage. An excellent  
24 example of thermal storage involves the operation of air conditioning units during off

1 peak hours and the later release of this stored thermal energy during peak hours. From  
2 an energy conservation perspective, thermal storage represents far more true conservation  
3 than all of the programs reviewed under the conservation docket. For instance, a typical  
4 modern school has a demand around 750 kilowatts. Almost a third of this is air  
5 conditioning compressors, so the potential from a demand perspective is a reduction of  
6 250 kW per school. From an energy conservation perspective, an air conditioning  
7 compressor unit operating during the cooler nighttime hours (instead of the much hotter  
8 daytime hours) will achieve an increase of efficiency of at least 15% and frequently 20%.  
9 These savings more than offset losses in the thermal storage scheme many times over.  
10 Considering the number of modern schools on the FPL system, this alone could  
11 dramatically improve FPL's system load factor, which would result in better utilization  
12 of its existing plant. The resulting improved load factor would in turn lead to recognition  
13 from securities analysts which issue opinions and recommendations on FPL stock.  
14 Lastly, this cooling method would reduce FPL's peak system demand, thereby deferring  
15 the time when additional generating capacity would be needed. An additional factor is  
16 that the generation mix required between peak generators and base load generators would  
17 be reduced, again improving overall fuel efficiency of the system and lowering costs.  
18 Since FPL has recently been a high cost supplier, this method would probably do more  
19 for its overall price performance than anything available to it in the short run. Certainly,  
20 time will be required for such incentive rates to be designed and implemented and for  
21 customers to become convinced to install thermal storage equipment. One could expect  
22 a period of one to six years to accomplish a significant change in the daily and annual  
23 load curves. However, the payoffs are tremendous. In the event more time is required  
24 than expected, peaking units, which might later become part of coal gasification



1 combined cycle units, can be installed on short lead time to handle any short fall in  
2 capacity. My exhibit is titled "Wells Document 1".  
3

4 Q. Have you reached any conclusion as a result of your examinations of FPL's load  
5 capacity status?

6 A. Yes. I believe that FPL's best alternative is to commence a vigorous program leading to  
7 improvement of the company's daily and annual load duration curves. I believe this to  
8 be a superior alternative to continuing to accommodate whatever demand in energy  
9 requirements are put to it by its customers both present and future.  
10

11 Q. Have you examined FPL's RFP and its recommendations concerning the Scherer  
12 Plant of Georgia Power?

13 A. Yes I have.  
14

15 Q. Would you please explain your findings?

16 A. There are several aspects of Scherer Plant which I have examined. First, the plant is  
17 located near Macon, Georgia. Experience has taught me that the transportation of  
18 electric energy is more expensive than the transportation of fuel in almost all cases.  
19 FPL's first priority should be to examine generation alternatives nearer its load centers.  
20 While I commend FPL for increasing its fuel diversity by the acquisition or construction  
21 of coal fired generation, I believe that new base load generation is not their current best  
22 alternative. Nevertheless, I have examined the Scherer Plant. The plant, near Macon,  
23 Georgia, is situated on and captive to the Norfolk Southern Railway. Only a few major  
24 suppliers of so-called standard coal or compliance coal exist on the railroad, and as of

1 this date the Norfolk Southern has not made foreign coal readily accessible to Plant  
2 Scherer. Many more suppliers capable of producing the low sulfur compliance coal  
3 happen to be located on the CSX rail system. For this reason, over the long term there  
4 may be more supply/demand imbalance attended with plants on the Norfolk Southern  
5 Railroad, such as Scherer, than on the CSX Railroad. I believe that this is one of the  
6 major reasons George Power is interested in selling Scherer No. 4. This can be  
7 contrasted to the Martin site, which has access to both CSX Transportation as well as  
8 potential access to water borne coal, including inexpensive off-shore coals. At any rate,  
9 Georgia Power's Plant Scherer currently suffers from some of the highest delivered coal  
10 costs in the nation. Until we see information from our discovery requests, we can only  
11 speculate on exactly how this situation would impact on the cost of producing power at  
12 Scherer Number 4. I believe that Scherer would continue to provide high priced power  
13 compared to other power plants of similar age, based upon the cost of fuel alone.

14  
15 **Q. Have you examined the fuel cost escalation and pricing of coal in the analysis of its**  
16 **RFP submissions?**

17 **A. Yes I have. During the 28 year analysis period, the projected price of coal delivered to**  
18 **Martin Plant has an average escalation of 6½%, while the Scherer Plant escalated**  
19 **delivered price escalates at 4½%. The net result at end of period is a \$100 per ton**  
20 **difference between coal delivered to Martin and Scherer, with coal delivered to Martin**  
21 **having the higher cost. This projected difference does not make sense to me, and falls**  
22 **outside of my experience in purchasing coal and coal transportation for use in Florida.**  
23 **The energy market is generally quite competitive, with various fuels seeking a fairly**  
24 **common level over time. For coal delivered to one place as compared to another to vary**

1 by \$100 per ton is unimaginable to me, and is not supported by current facts. This is  
2 especially true given the fact that the Scherer Plant has relatively poor access to  
3 compliance coal as compared to Martin. There is some probability that in the long run  
4 the Scherer Plant may have to go to Wyoming for its fuel supply, with an extremely long  
5 rail haul between the Wyoming mines and Macon, Georgia. Western coals have recently  
6 been tested at Scherer in units 1 and 2, and additional tests are planned at this time for  
7 units 3 and 4. This could put Scherer in jeopardy for further escalating prices for a  
8 company which certainly needs to move toward decision in their near term which will  
9 bring it into line with other electric suppliers in Florida. Add to this the current  
10 confusion about how Scherer may be required to respond to changes in the Clean Air Act  
11 (Acid Rain Amendments), and we see that the case for purchasing Scherer Unit 4 is not  
12 strong.

13

14 **Q. Are FPL's projected differences in the cost of coal delivered to the Scherer Plant**  
15 **compared to the Martin site justified by differences in coal purchase and coal**  
16 **transportation costs?**

17 **A. No.** As I mentioned earlier, the Scherer Plant site is captive to the Norfolk Southern  
18 Corporation rail system ("NS"). Current rates to Scherer on the NS are believed to be  
19 in excess of \$12.00. These do not compare favorably with the cost of delivering coal  
20 to Florida. The cost of rail delivery to the St. Johns River Power Park is not  
21 substantially above that of getting coal to Scherer. Additionally, I believe that the cost  
22 of moving coal to Florida Power Corporation's Crystal River plants is also much less  
23 expensive on a mills per mile basis, and competitive with the Scherer rates. The plants  
24 near Jacksonville and at Crystal River have some access to water competition, which



1 causes the delivering rail carrier to offer competitive rates to those plants. Modal  
2 competition could also be developed for potential power plant sites for an FPL unit,  
3 yielding relatively low transportation costs. Additionally, the plant at the Martin site  
4 would have more flexibility on sourcing its coal, with access to offshore coals, western  
5 coal (by water), and all of the producers on the CSX Transportation railroad. The  
6 Martin site could also consider the use of higher sulfur coal, since some stack gas  
7 cleaning technology would be required for a new coal fired unit built in Florida. High  
8 sulfur coal is projected to be significantly less expensive than compliance coal over the  
9 next several years. The net result is that coal delivered to Martin has the real potential  
10 to be substantially cheaper than coal delivered to Scherer, particularly if Unit 4 is  
11 required to take coal from the current extremely high cost suppliers now shipping coal  
12 to Plant Scherer.

13  
14 **Q. Are there any other aspects of the Scherer Plant which you have studied that would**  
15 **have impact on this petition of FPL?**

16 **A. Yes. The design of the cooling tower has an approach temperature which appears to be**  
17 **4 degrees Fahrenheit from optimum. Time has not permitted a closer examination of this**  
18 **aspect of the plant design under this accelerated hearing procedure. If my original**  
19 **thinking on this is borne out by further engineering examination, this cooling tower**  
20 **design could have an enormous impact on the overall plant efficiency. At this point in**  
21 **time, I cannot say that this is a problem that can be corrected through improvement of**  
22 **the existing cooling tower but at best it would require additional capital expenditure to**  
23 **correct.**

1 Q. Based on your analysis, have you reached a conclusion?

2 A. Yes. FPL's petition should be denied at this time. Sufficient time should be permitted  
3 to reasonably evaluate changes to FPL's load curve by providing effective incentives for  
4 off peak power use.

5

6 Q. Does this conclude your testimony?

7 A. Yes.

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FLORIDA PUBLIC SERVICE COMMISSION

COMPANY: FLORIDA POWER & LIGHT COMPANY  
AND SUBSIDIARIES

DOCKET NO. 900038-E1

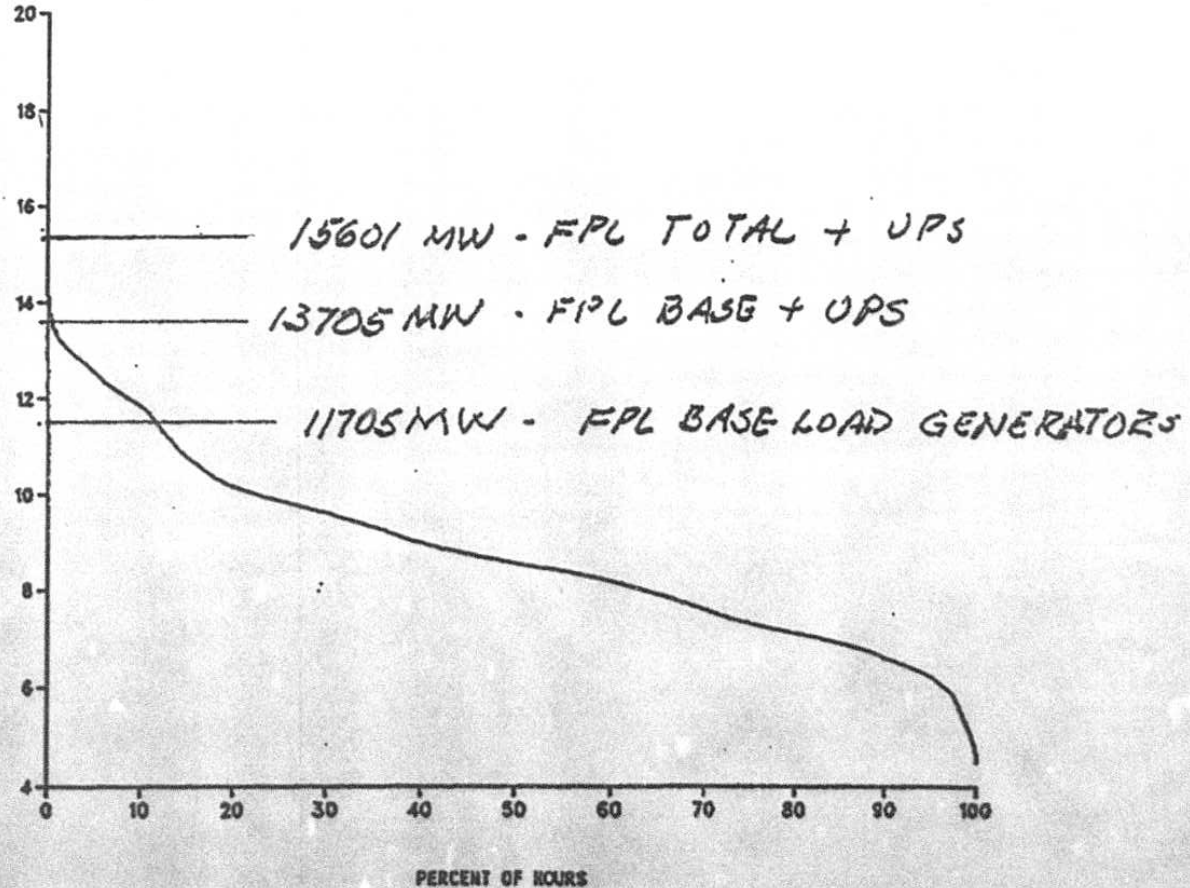
EXPLANATION: Provide the load duration curve for the total system (wholesale and retail) for the test year. Also, provide load duration curves for the year of the most recently completed load research study for the total system, for each retail rate class, all wholesale customers in the aggregate and all other sales. If available, provide load duration curves for each rate class for the test year.

Type of Data Shown  
Historic Year:  
Subsequent Year:  
Projected Test Year: 1990  
Prior Year:

295

NET

MEGAWATTS



Note: Based on Historical Data from August 88 to July 89

Supporting Schedules:

Recap Schedules:



FLORIDA PUBLIC SERVICE COMMISSION

EXPLANATION: For the months of January, April, August, and October, provide system load shapes for the following days for the most recent 12-month period for which data is available.

Type of Data Shown:

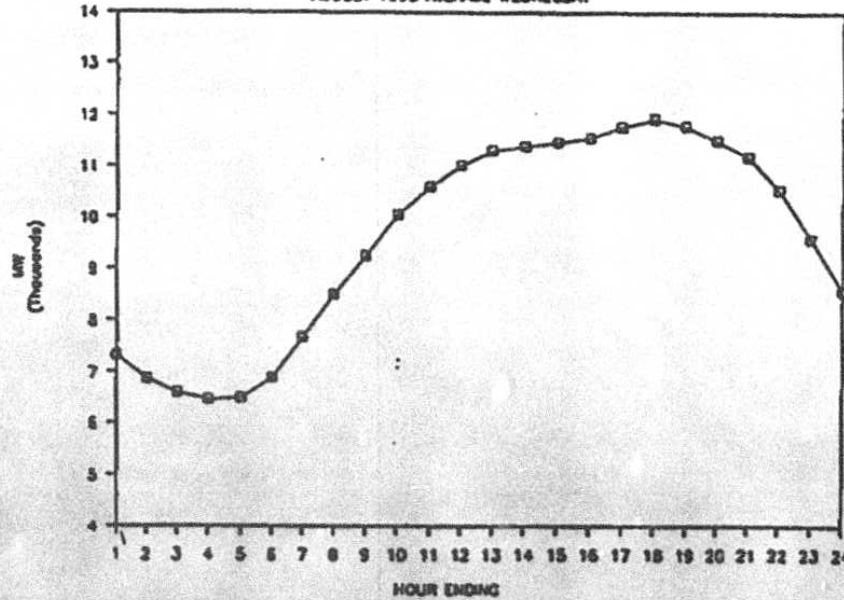
COMPANY: FLORIDA POWER & LIGHT COMPANY,  
AND SUBSIDIARIES

Historic Year:  
Subsequent Year:  
Projected Test Year: 1990  
Prior Year:

DOCKET NO. 900038-E1

1. Peak weekday
2. Peak Saturday
3. Peak Sunday
4. Average Monday, excluding the days with the highest and lowest demands
5. Average Wednesday, excluding the days with the highest and lowest demands
6. Average Saturday, excluding the days with the highest and lowest demands
7. Average Sunday, excluding the days with the highest and lowest demands

FPL SYSTEM LOADS  
AUGUST 1990 AVERAGE WEDNESDAY



Supporting Schedules:

Recap Schedules:

319

Schedule E-23

SYSTEM LOAD SHAPES

Page 15 of 28

FLORIDA PUBLIC SERVICE COMMISSION

EXPLANATION: For the months of January, April, August, and October, provide system load shapes for the following days for the most recent 12-month period for which data is available.

Type of Data Shown:

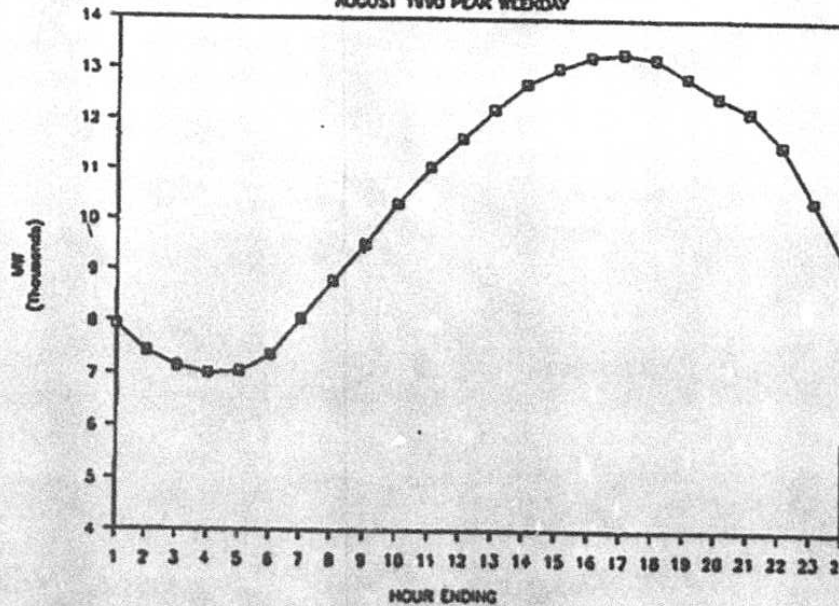
COMPANY: FLORIDA POWER & LIGHT COMPANY  
AND SUBSIDIARIES

Historic Year:  
Subsequent Year:  
Projected Test Year: 1990  
Prior Year:

DOCKET NO. 900038-EI

1. Peak weekday
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4. Average Monday, excluding the days with the highest and lowest demands
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7. Average Sunday, excluding the days with the highest and lowest demands

FPL SYSTEM LOADS  
AUGUST 1990 PEAK WEEKDAY

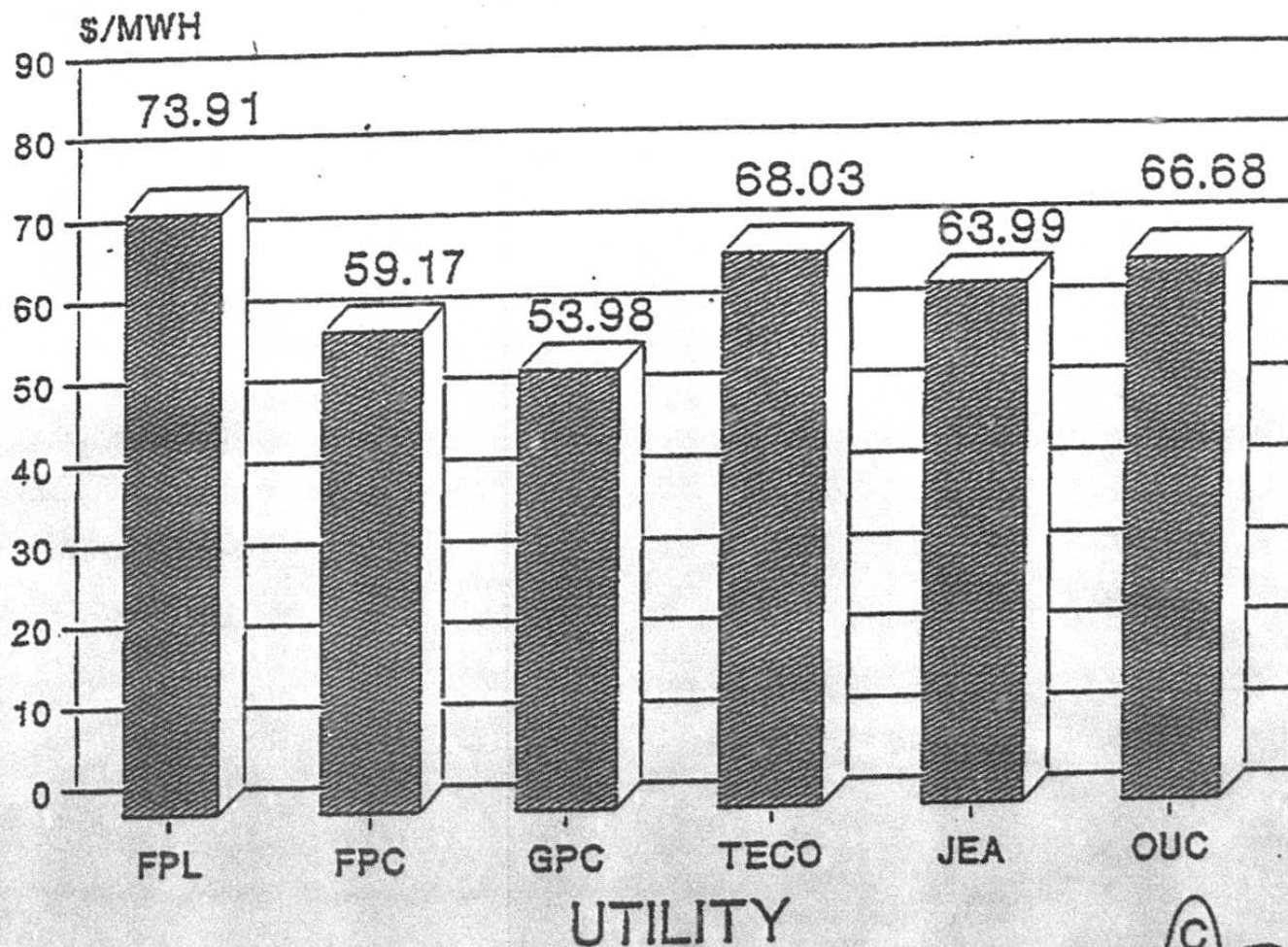


Supporting Schedules:

Recap Schedules:

315

# \$/MWH COMPARISON 1989



Prepared by: COALITION OF LOCAL GOVERNMENTS  
P.O. BOX 4748, CLEARWATER, FL 34618

Data Source: ENERGY INFORMATION AGENCY FORM 826, AS FILED  
WITH THE FLORIDA PUBLIC SERVICE COMMISSION

