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FILE COPY**

April 26, 1990

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Mr. Steve Tribble, Director
Division of Records and Reporting
Florida Public Service Commission
101 East Gaines Street
Tallahassee, Florida 32399

Re: Docket 891345-EI

Dear Mr. Tribble:

Enclosed are an original and fifteen (15) copies of the Federal Executive Agencies' (FEA) prefiled testimony of Dr. Charles E. Johnson to be filed in the above-referenced docket.

Sincerely,

Gary A. Enders

GARY A. ENDERS, Major, USAF
Utility Litigation Counsel
General Litigation Division
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| ACK | <u>✓</u> |
| AFA | <u>3</u> |
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Certificate of Service
Docket No. 891345-EI

I HEREBY CERTIFY that a true copy of the Direct Testimony of Dr. Charles E. Johnson on behalf of the Federal Executive Agencies has been furnished by Federal Express to Gulf Power Company and by U.S. mail to the remaining parties below on this 26th day of April 1990.

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**ORIGINAL
FILE COPY**

**BEFORE THE
FLORIDA PUBLIC SERVICE COMMISSION**

**IN RE: PETITION OF GULF POWER) DOCKET NO. 891345-EI
 COMPANY FOR A)
 RATE INCREASE) FILED APRIL 27, 1990**

**DIRECT TESTIMONY OF
DR. CHARLES E. JOHNSON**

**on behalf of
UNITED STATES FEDERAL EXECUTIVE AGENCIES**

APRIL 1990

EXETER
Associates, Inc.

10801 Lockwood Drive
Suite 350
Silver Spring, MD 20901

DOCUMENT NUMBER-DATE
03639 APR 27 1990
FPSC-RECORDS/REPORTING

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BEFORE THE
FLORIDA PUBLIC SERVICE COMMISSION

In re: Petition of Gulf Power) Docket No. 891345-EI
Company for a Rate Increase) Filed April 27, 1990

DIRECT TESTIMONY OF
DR. CHARLES E. JOHNSON

QUALIFICATIONS

- 1 Q. PLEASE STATE YOUR NAME, OCCUPATION, AND ADDRESS.
- 2 A. My name is Charles E. Johnson. I am a Principal with Exeter
3 Associates, Inc. Our offices are located at 10801 Lockwood Drive,
4 Silver Spring, Maryland, 20901.
- 5 Q. PLEASE OUTLINE YOUR EDUCATIONAL BACKGROUND.
- 6 A. I hold a combined B.S. Degree in Chemistry and Physics from the
7 University of Utah, an M.S. in Mathematics from the University of
8 Wisconsin, and a Ph.D. in Mathematics from the Ohio State Univer-
9 sity.
- 10 Q. HOW HAVE YOU BEEN EMPLOYED SINCE RECEIVING YOUR DEGREES?
- 11 A. After completing my graduate education, I was an Instructor of
12 Mathematics at Kansas State University in Manhattan, and an Assis-
13 tant Professor of Mathematics at Wichita State University. In
14 1974, I left the academic environment and was employed by Control
15 Data Corporation as a Manager responsible for mathematical model-
16 ing. In 1977, I joined the economic consulting firm of J.W.
17 Wilson & Associates, Inc. Since that time, I have been consulting
18 in the area of energy economics and utility regulation, for part

1 of that time as an independent consultant. I became a principal
2 of Exeter Associates, Inc. in January 1986.

3 Q. HAVE YOU TESTIFIED PREVIOUSLY IN REGULATORY PROCEEDINGS?

4 A. Yes, I have testified as an expert witness before regulatory
5 commissions in the District of Columbia, New Jersey, New Hamp-
6 shire, Minnesota, Pennsylvania, North Carolina, South Carolina,
7 Oklahoma and Texas. These proceedings have involved the regula-
8 tion of electric and gas utilities and I have addressed such
9 topics as class cost-of-service studies, rate design, accounting
10 issues and financial issues.

11 Q. WOULD YOU PLEASE DESCRIBE SOME OF YOUR ADDITIONAL PROFESSIONAL
12 ACTIVITIES?

13 A. I have provided assistance to numerous entities involved in
14 business and economic rate regulation. Much of this work has been
15 in public utility regulation on behalf of state regulatory agen-
16 cies or other public authorities such as state attorneys general
17 and federal agencies. I have also provided assistance to indepen-
18 dent consumer groups. I have assisted a number of industrial
19 enterprises in examining their operations in light of their tariff
20 options and the potential for altering usage patterns or install-
21 ing cogeneration facilities. Recent work has been in the area of
22 power supply; determining the optimal means of meeting a
23 facility's energy requirements from all of the potential sources
24 of power available to that facility and negotiating contracts to
25 provide that power.

1 I have also provided assistance to public authorities involved
2 in insurance rate regulation. I have provided consulting services
3 to the California State Legislature and the District of Columbia
4 Insurance Department in the area of property/casualty insurance
5 ratemaking, and I have provided assistance in conjunction with
6 workers compensation rate filings in Montana, Oklahoma, North
7 Carolina, South Carolina and Florida.

PURPOSE

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Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS CASE?

A. I have been requested by the United States Federal Executive Agencies (FEA) to review the electric rates proposed by Gulf Power Company. My review includes an examination of the class cost-of-service study filed by Mr. O'Sheasy and the rate proposals presented by Mr. Jack L. Haskins and a determination of the propriety of the Gulf Power Company tariffs for large power customers.

Q. PLEASE SUMMARIZE THE RESULTS OF YOUR REVIEW.

A. I recommend that the Florida Public Service Commission modify the Gulf Power Company proposal and increase rates base for the LP/LPT and the PXT classes by the same percentage rather than by different percentages. At the Company-requested revenue level, that percentage would be 8.48 percent. This recommendation is based on a review of the Gulf Power 1990 class cost-of-service study that shows the study to be flawed. I have also made a comparison of the 1990 study with the results of one performed by the Company in 1989.

I recommend that the discounts for service at primary and transmission voltage be increased to reflect the difference in cost and I propose a revised rate schedule for the LP/LPT class. This Commission has increasingly recognized the lower cost to serve customers at higher voltage levels over the course of the last several Gulf Power proceedings. However, the lower cost to serve these customers is not fully reflected in the discount in the current rates nor in the rates proposed by Gulf Power.

1 I have determined that voltage differences between customers
2 is only a subsidy problem within the LP/LPT class and I restrict
3 my recommendations to that class. My voltage discount rate
4 proposal simply moves to eliminate intra-class subsidies in the
5 LP/LPT class and do not affect the rates or rate levels of any
6 other class.

7 My use of the Company-proposed revenue level is not an en-
8 dorsement of the Gulf Power revenue request, but is merely based
9 on the same revenue level as the Company's proposed rate design
10 for ease of comparing my rate design proposals with those of the
11 Company. If this Commission were to award Gulf Power a smaller
12 amount of revenue, my recommended base rate charge per kW should
13 be reduced accordingly.

CLASS COST-OF-SERVICE STUDY

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Q. HAS GULF POWER COMPANY SUBMITTED A CLASS COST-OF-SERVICE STUDY IN THIS PROCEEDING?

A. Yes. Mr. O'Sheasy filed an embedded class cost-of-service study as part of Gulf Power's original filing. That study was based on allocating investment in production plant to the Florida retail customers based on an average of the 12 monthly coincident peak demands, with one-thirteenth of the investment allocated based on the class' energy consumption. Mr. O'Sheasy stated that techniques used in the retail cost allocation conform with those approved previously by the Florida PSC.

Q. HAVE YOU REVIEWED THE CLASS COST-OF-SERVICE STUDIES FILED BY GULF POWER COMPANY?

A. Yes. I have reviewed the class cost-of-service study filed by Mr. M.T. O'Sheasy on behalf of the Company. It is his position that this study represents a fair and accurate statement of the Gulf Power Company's class rates of return.

Q. DO YOU AGREE WITH MR. O'SHEASY'S ASSESSMENT?

A. I do not entirely agree with Mr. O'Sheasy's assessment that his cost-of-service study represents a fair and accurate statement of Gulf Power Company's class rates of return. Specifically, Mr. O'Sheasy's study overstates the cost of providing service to the LP/LPT class.

Q. IN WHAT WAYS DOES GULF POWER COMPANY'S CLASS COST-OF-SERVICE STUDY OVERSTATE THE COST OF PROVIDING SERVICE TO THE LP/LPT CLASS?

1 A. There are several ways that the class cost-of-service study filed
2 by Gulf Power Company overstates the cost of providing service to
3 the LP/LPT class.

4 The primary reason that Gulf Power's study overstates costs of
5 serving the LP/LPT class is because generating capacity associated
6 with Gulf States Utilities' default on unit power sales is allo-
7 cated to the Florida jurisdictional rates classes. These costs
8 fall on all jurisdictional customers, but fall more heavily on
9 classes for which production plant makes up a large portion of
10 costs, such as the LP/LPT class.

11 Q. WHY DOES THE GULF STATES' DEFAULT OVERSTATE COSTS TO THE
12 FLORIDA RETAIL JURISDICTION?

13 A. Investment in generating plant that was planned for unit power
14 sales was not intended to serve native load at this time. Gulf
15 Power witness E.B. Parsons, Jr. testified that the Company has
16 attempted to make off-system sales to the maximum extent possible,
17 but has been unable to market 63 MW of Plant Sherer capacity.
18 Company witness M.W. Howell testified that the Southern system may
19 have capacity available to sell until the mid 1990's, if a pur-
20 chaser can be located, including the 63 MW of Plant Sherer Unit 3.
21 Thus, if Gulf States had not defaulted, or if the Company could
22 otherwise sell the output from Plant Sherer, these cost would not
23 fall on the Florida retail customers.

24 Q. WHAT WOULD THE FLORIDA RETAIL RATE OF RETURN BE IF THE 63 MW
25 OF PLANT SHERER WERE SOLD AS UNIT POWER SALES?

1 A. I have determined that the Florida retail rate of return would be
2 forty basis points higher if the 63 MW of Plant Sherer were not
3 included.

4 Q. DO YOU RECOMMEND THAT THE 63 MW OF PLANT SHERER COSTS BE
5 DISALLOWED?

6 A. I am making no recommendation on revenue requirements for Gulf
7 Power Company. The purpose of my analysis is to determine the
8 distributional effects of including the costs of the default on
9 Florida jurisdictional customers.

10 Q. WHAT ARE THE DISTRIBUTIONAL EFFECTS OF INCLUDING THE COSTS OF
11 THE 63 MW OF PLANT SHERER IN FLORIDA JURISDICTIONAL COSTS?

12 A. The costs associated with the 63 MW of Plant Sherer will fall
13 disproportionately on the LP/LPT and PXT rate classes.

14 Q. WHY DOES THE BURDEN OF THE PLANT SHERER CAPACITY FALL MORE
15 HEAVILY ON THE LP/LPT AND PXT CLASSES?

16 A. A greater proportion of production plant is allocated to the
17 LP/LPT and PXT rate classes than the proportion of transmission or
18 distribution plant. Thus, production costs make up a larger
19 portion of the rates for LP/LPT and PXT customers.

20 The costs associated with the default could be considered as a
21 surcharge on the cost of service and not as a cost of providing
22 service to Florida retail customers. Considering it as a sur-
23 charge, there are numerous ways of assigning or allocating that
24 surcharge to the retail rate classes. It could be allocated on
25 total revenue so that each class would have its charges increased
26 by the same percentage, for example. By allocating this surcharge

1 as Gulf Power has in its class cost-of-service study, the sur-
2 charge is placed most heavily on the rate classes whose usage is
3 primarily at higher voltages, because production costs make up a
4 larger portion of their total costs.

5 Q. SINCE PLANT SHERER COSTS ARE RELATED TO PRODUCTION PLANT,
6 ISN'T IT APPROPRIATE TO ALLOCATE THEM TO RATE CLASSES BASED ON
7 THE SAME PRODUCTION ALLOCATOR USED IN THE COST-OF-SERVICE
8 STUDY?

9 A. It is not necessarily appropriate to do so, because strictly
10 speaking, these are not a part of the cost of providing service.
11 If Gulf States had not defaulted, or if Gulf Power were able to
12 sell the 63 mW as unit power sales to another customer, little
13 would change for Florida retail customers, except the rate level
14 being requested. It is important to note that the revenue re-
15 quested from the LP/LPT and PXT classes would then be reduced by a
16 greater percentage than average.

17 Q. YOU IDENTIFY THE GULF STATES DEFAULT AS THE PRIMARY REASON
18 THAT GULF POWER'S CLASS COST-OF-SERVICE STUDY OVERSTATES THE
19 COST OF SERVICE THE LP/LPT CLASS. ARE THERE OTHER REASONS?

20 A. Yes, there are other reasons that Gulf Power's class cost-of-
21 service study overstates the cost of serving the LP/LPT class.
22 The Company is apparently expecting substantial changes in the PXT
23 class, including customers transferring to the LPT rate schedule.
24 One large consumer, in particular, was expected to transfer from
25 the PXT rate to the LPT rate, but has not done so. The PXT class
26 mWh sales are expected to be 11 percent lower in 1990 than in

1 1989, while LP/LPT sales are expected to be 12 percent higher.
2 Further, comparing the most recent historical year with the
3 projected test year sales for SE power, the PXT sales level is
4 expected to drop by half, while the Company is expecting a
5 severalfold increase in SE sales for the LP/LPT class.

6 These expectations of the Company are questionable, at best,
7 and have the effect of overstating the cost of service the LP/LPT
8 class. For example, the one large PXT customer that was expected
9 to transfer to the LPT rate had nearly \$2,000,000 worth of special
10 facilities constructed by the Company. Recovery of the costs
11 associated with this investment are not recovered directly from
12 the customer, but are recovered through base rates over a period
13 of years. This is the reason that Gulf Power is proposing its
14 Local Facilities Charge. While the Local Facilities Charge may
15 ensure the eventual recovery of the special facilities expenditure
16 over time, this treatment does increase the cost of serving this
17 customer above the revenue level currently being recovered. It
18 also increases the cost of serving the class to which the customer
19 belongs, without a commensurate increase in the revenue associated
20 with the class. By incorrectly including this customer in the
21 LP/LPT class, Gulf Power's cost-of-service study overstates the
22 cost of serving the LP/LPT class and understates the rate of
23 return. The same action understates the cost of serving the PXT
24 class and overstates the PXT class rate of return.

25 Q. HOW DOES THIS AFFECT THE INCREASE IN REVENUE AS PROPOSED BY
26 GULF POWER?

1 A. These problems with calculating the cost of serving the LP/LPT and
2 PXT rate classes call the Company's proposal into question. Mr.
3 Haskins has proposed a larger increase for the LP/LPT class than
4 for the PXT class, based largely on the faulty cost study. I
5 recommend that the Florida Public Service Commission not adopt the
6 Company's proposal.

7 Q. HOW DO YOU RECOMMEND THE COMMISSION SET THE REVENUE LEVELS FOR
8 THESE TWO CLASSES?

9 A. I recommend that the Commission increase rates for the LP/LPT and
10 PXT classes by equal percentages. At the Company-requested
11 revenue level, the increase would be an 8.48 percent increase. A
12 comparison of my proposal with Gulf Power Company's appears in
13 Exhibit__(CEJ-1).

14 I base this recommendation on the following:

- 15 1. The rates of return for the LP/LPT and PXT classes in
16 the 1989 cost study were 7.21 and 7.18 percent, re-
17 spectively, versus a retail rate of return of 6.88
18 percent.
- 19 2. The rate of return for the LP/LPT class in the 1990
20 cost study of 6.54 understates the correct level.
- 21 3. The rate of return for the PXT class in the 1990 cost
22 study of 8.92 overstates the correct level.
- 23 4. The 1990 rate of return for the two classes combined
24 is 7.22 percent, compared to the retail level of 6.60
25 percent.

1 5. The Company-proposed allocation of the GSU default
2 increases costs to the PXT and LP/LPT classes by a
3 greater percentage than to other classes.

4 In summary, the results for the aggregate of the two classes for
5 both years is consistent; the 1990 study would show results more
6 like the 1989 study if some of the errors were corrected; and the
7 rates of return for both classes would be increased by more than
8 average, were it not for the GSU default.

VOLTAGE DISCOUNT

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Q. DOES THE CURRENT LP/LPT TARIFF PROPERLY CHARGE CUSTOMERS FOR SERVICE AT DIFFERENT VOLTAGE LEVELS?

A. No. Gulf Power Company's LP/LPT tariff overcharges customers taking service at higher voltage levels. The current and proposed tariffs provide a discount to customers who own their transformers, but these discounts should be provided to all primary and transmission level customers. Customers not providing their own transformers should be charged for the costs incurred by Gulf Power on their behalf. Additionally, the lower level of costs imposed on the system by customers taking service at high voltage levels warrants much greater discounts than are currently provided.

Q. WHY IS A LOWER LEVEL OF COSTS IMPOSED ON THE SYSTEM BY CUSTOMERS TAKING SERVICE AT HIGHER VOLTAGE LEVELS?

A. There are two reasons that customers taking service at higher voltage impose lower costs on the utility than a customer with similar loads but at secondary distribution voltage:

1. Losses for customers taking service at distribution voltage are about 6 times as great as losses for customers at transmission voltage, and about 2.5 times as great as losses for primary customers.
2. Service to customers at distribution voltage requires additional substations, conductor, poles, transformers and other equipment that are not used to provide service at higher voltage.

1 Q. PLEASE ELABORATE ON HOW DIFFERING LOSSES FOR SERVICE AT DIF-
2 FERENT VOLTAGES PRODUCE A LOWER COST FOR EACH KWH OR KW DELIV-
3 ERED AT A HIGHER VOLTAGE.

4 A. Each kWh delivered to an LP/LPT transmission level customer
5 requires about 1.014 kWh to be generated. The .014 kWh is lost in
6 getting the energy through the transmission system to the
7 customer's meter. Distribution level LP/LPT customers require
8 about 1.083 kWh to be generated for each 1 kWh delivered, or about
9 6.8% more energy must be generated for each kWh provided to
10 distribution-level customers than for transmission level custom-
11 ers. Thus, the difference in losses between service at distribu-
12 tion and transmission levels accounts for an energy cost differ-
13 ence of nearly 7 percent. For demand, the difference in losses is
14 even greater, at over 9 percent. The differences in losses
15 between secondary and primary customers are over 4 percent for
16 energy and 6 percent for demand.

17 Q. WHAT DISCOUNT SHOULD BE PROVIDED TO ALL PRIMARY AND TRANS-
18 MISSION LEVEL CUSTOMERS TO ACCOUNT FOR THE DIFFERENCE IN
19 LOSSES AT HIGHER VOLTAGE?

20 A. In order to be certain of not overstating the discount, I have
21 rounded each down to the next lower whole percentage point. On
22 that basis, the difference in losses at higher voltage justifies a
23 discount for primary customers of 4 percent for energy and 6
24 percent for demand. For transmission customers, the difference in
25 losses justifies an energy discount of 6 percent and a demand
26 discount of 9 percent. I recommend that this Commission adopt

1 these discounts to account for the difference in losses for
2 customers taking service at higher voltage.

3 Q. DO THESE LOSSES ALSO APPLY TO THE FUEL CONSUMED BY GULF POWER
4 COMPANY?

5 A. Yes. Each kWh received at the customer's meter required that the
6 Company generate more than one kWh to account for losses in the
7 system. The larger the losses, the more fuel that is required to
8 produce the energy received by the customer. Thus, Gulf Power
9 must burn more fuel to produce a kWh used by customers at lower
10 voltage than for a kWh used by a customer at high voltage.

11 Q. SHOULD LOSSES BE CONSIDERED IN SETTING THE FOSSIL FUEL AND
12 PURCHASED POWER COST RECOVERY CLAUSE (RATE SCHEDULE CR)?

13 A. Yes. Rate Schedule CR is differentiated now by rate schedule,
14 which accounts for average losses for the rate schedule. The fuel
15 cost differences by voltage level within rate schedules should
16 also be reflected in Schedule CR.

17 Q. IS IT NECESSARY TO DEVELOP VOLTAGE-DIFFERENTIATED FUEL CHARGES
18 FOR EACH RATE?

19 A. No. Voltage differences only have an impact on the LP/LPT class,
20 and a voltage-differentiated CR tariff only needs to be developed
21 for this class. Other classes are more homogeneous. All of the
22 Residential and Outdoor Service is provided at distribution
23 voltage, only one-half of one percent of the GS/GSD sales are not
24 at distribution voltage, and all of the PXT sales are at primary
25 voltage. By contrast, the LP/LPT class is composed of customers

1 spread through all voltage levels. The following table gives the
2 distribution of sales by voltage level for the LP/LPT class:

| | <u>Voltage Level</u> | <u>Percent of Sales</u> |
|---|------------------------|-------------------------|
| 3 | | |
| 4 | Distribution (Level 5) | 24.5% |
| 5 | Primary (Level 4) | 34.9% |
| 6 | (Level 3) | 19.5% |
| 7 | Transmission (Level 2) | 21.1% |

8 The 21.1% percent of sales at Level 2 and 19.5 percent of sales at
9 Level 3 are subsidizing the sales at Level 4 and Level 5, and
10 Schedule CR should be modified to reduce the subsidies being
11 provided to lower voltage customers.

12 Q. HOW DO YOU PROPOSED TO SET THE CR TARIFF FOR THE LP/LPT CLASS?

13 A. In order to properly recognize the difference in the cost of fuel
14 required to produce a kWh at the customer's meter for different
15 voltage levels, I propose that the Commission change the CR tariff
16 to account for these losses. I have calculated charges for each
17 voltage level of the LP/LPT class that maintain the relationship
18 between time of use (TOU) and standard rates and that will produce
19 the same revenue as the current CR tariff. The fuel charge for
20 the three voltage levels I propose is shown in the following
21 table:

Proposed LP/LPT CR Tariff
(cents/kWh)

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Distribution Primary Transmission

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|--------------|-------|-------|-------|
| Standard | 2.151 | 2.065 | 2.022 |
| TOU: On-peak | 2.242 | 2.152 | 2.107 |
| Off-peak | 2.116 | 2.031 | 1.989 |

In addition, I recommend that the Commission direct Gulf Power Company to file a voltage-differentiated CR tariff for the LP/LPT class in the future. This voltage-differentiated tariff should incorporate the energy losses for each voltage level of service.

Q. PLEASE TURN TO THE SECOND REASON THAT CUSTOMERS TAKING SERVICE AT HIGHER VOLTAGE LEVELS IMPOSE LOWER COSTS ON THE UTILITY, NAMELY THAT SERVICE TO CUSTOMERS AT LOWER VOLTAGE LEVELS REQUIRES ADDITIONAL EQUIPMENT THAT IS NOT USED TO PROVIDE SERVICE AT HIGHER VOLTAGE. HAVE YOU QUANTIFIED THE AMOUNT OF DIFFERENCE IN COSTS FOR THE VOLTAGE LEVELS?

A. Yes, I have determined that if all LP/LPT customers were served at level 2, i.e., transmission voltage, the costs imposed on Gulf Power Company would be reduced by \$3,675,000. If all LP/LPT customers were served at either primary or transmission voltage, costs would be reduced by \$2,104,522.

Q. HOW HAVE YOU MADE THIS DETERMINATION?

A. I have expanded the original embedded cost study prepared by Company witness O'Sheasy to voltage levels for the LP/LPT rate class. I did not modify my analysis to account for revisions made by Mr. O'Sheasy to his study, but those changes should have little effect on my results. This expansion identifies all costs that

1 would be associated with service to the class if all customers
2 took electricity at each higher voltage level. For example, I
3 determined which costs would be incurred if all customers took
4 service at voltage level 2, transmission service, and excluded
5 costs associated with the lower level distribution system.
6 Because I excluded only those costs that were clearly related to
7 service at lower voltages, the amount excluded understates the
8 real cost difference. The results from my expansion of the
9 O'Sheasy cost study appears in Exhibit ___(CEJ-2).

10 Of the total \$31,141,000 revenue required from sales to
11 produce the current 6.54 percent rate of return for the LP/LPT
12 class, only \$27,466,000 would be required if all service were at
13 voltage level 2. That is, only 88.2 percent of the average cost
14 of LPS service would be required to provide service if all custom-
15 ers took service at transmission level. If all service were at
16 voltage level 2 or 3, the required revenue would be \$28,339,000,
17 and if all service were at voltage levels 2, 3, or 4, the required
18 revenue would be \$30,539,000. Because the primary service level
19 includes both voltage levels 3 and 4, the revenue requirement for
20 service at primary level was calculated at the weighted average of
21 levels 3 and 4, which is 93.2 percent of the average cost.

22 Q. HOW DO YOU PROPOSE TO INCORPORATE THE COST DIFFERENCE ASSO-
23 CIATED WITH VOLTAGE LEVEL INTO A RATE DISCOUNT?

24 A. Because most of the cost of the distribution system is recovered
25 through demand charges, it is appropriate to reduce the maximum
26 demand charge for customers taking service at higher voltage to

1 account for this difference in cost. The Company's proposed base
2 revenue for LPT transmission level customers (excluding customer
3 charges and voltage discounts) is \$7,252,290. This is the amount
4 that would be paid if the electricity were taken at distribution
5 voltage with no discount. Costs if all LPT customers took service
6 at transmission level account for approximately 88.2% of this
7 amount, \$6,396,520, which is \$850,770 less than under the base
8 demand charge. Dividing this difference by the maximum billing kw
9 produces a reduction in cost of \$1.35/kWh. For the primary
10 discount, the reduction must be prorated between standard and
11 time-of-use billing kw. The resulting cost reduction per kW is
12 \$0.76 for standard rates and \$0.72 for time-of-use rates.

13 Q. WHAT DISCOUNTS DO YOU PROPOSE FOR CUSTOMERS TAKING SERVICE AT
14 HIGHER VOLTAGE?

15 A. From the difference in cost that I just described, I propose a
16 discount of \$1.30 per kW for transmission level LPT customers and
17 \$0.70 per kW for primary level LPT customers. In addition, based
18 on the difference in losses for higher voltage customers, I
19 propose a discount of 6 percent for energy and 9 percent for
20 demand for transmission level customers, and 6 percent and 4
21 percent for demand and energy, respectively, for primary voltage
22 customers.

23 Q. SHOULD THERE BE A RATE DIFFERENTIAL FOR THOSE CUSTOMERS WHO
24 OWN THEIR TRANSFORMERS?

25 A. Yes. Customers who own and maintain their transformers enable the
26 utility to avoid the cost associated with installing and maintain-

1 ing this equipment; and this cost difference should be reflected
2 in the utility rates.

3 Q. HOW SHOULD THIS RATE DIFFERENCE BE STRUCTURED?

4 A. There are several ways that the difference in cost associated with
5 ownership of the transformers can be reflected in rates. One that
6 is commonly used is to require customers to provide transforma-
7 tion, and to assess a specific facilities charge against those
8 customers who do not. This will recover the costs expended specif-
9 ically on their behalf by the utility. Calculation of such a
10 charge requires that the amount of the investment for each custom-
11 er be known. Then the carrying costs of the investment plus
12 appropriate O&M costs can be assessed to each customer using
13 utility-owned transformers. However, it appears that little or no
14 electricity is sold by Gulf Power to high voltage customers that
15 do not own their transformers at this time. Therefore, I recom-
16 mend that Gulf Power Company be directed to prepare a tariff that
17 contains a provision for recovering costs from those customers
18 that do not own their transformers, if those customers have not
19 made full contributions in aid of construction for their facili-
20 ties.

21 Q. HAVE YOU DEVELOPED RATES FOR THE LP/LPT CLASS THAT INCORPO-
22 RATES YOUR PROPOSED DISCOUNTS?

23 A. Yes. These rates differ from Gulf Power's proposed rates in the
24 following ways:

- 1 1. The charge per kW for secondary service is greater and
- 2 voltage discounts for primary and transmission service are
- 3 higher.
- 4 2. The energy and demand percentage discounts are greater.
- 5 3. Rate Schedule CR contains voltage-differentiated charges for
- 6 the LP/LPT class.

7 A comparison of the Company's proposed rates with mine is con-
8 tained in Exhibit___(CEJ-3). Page 1 of Exhibit___(CEJ-3) contains
9 the demand and energy charges, page 2 contains the proposed
10 schedule CR, and page 3 contains the discounts for service at
11 higher voltage.

12 Q. IS YOUR PROPOSAL CONSISTENT WITH PAST COMMISSION ACTIONS?

13 A. Yes. In past rate cases, the Florida Public Service Commission
14 has moved closer to cost-based rates by modifying the voltage
15 discounts for higher voltage customers. I am recommending that
16 the Commission complete that process in this proceeding and
17 totally eliminate the intra-class subsidy in the LP/LPT class. It
18 must be kept in mind that the higher voltage customers have been
19 and still are subsidizing the lower voltage customers. Until the
20 discounts I have proposed are adopted, that subsidization will
21 continue.

22 Q. HAVE YOU EXAMINED THE IMPACT YOUR PROPOSAL WILL HAVE ON TYPI-
23 CAL CUSTOMERS IN THE LP/LPT CLASS?

24 A. Yes. I have calculated the increase for each typical LP/LPT
25 customer appearing in Schedule A-3 of the Minimum Filing Require-
26 ments. Under the rates I propose, the increase in rates for

1 secondary distribution customers will be from two to six percent-
2 age points higher than under the Gulf Power proposal, the increase
3 for primary customers will be about the same as proposed by the
4 Company, and the increase for transmission customers will be less
5 than proposed by the Company. The comparisons for those customers
6 appears in Exhibit__(CEJ-4).

7 As can be seen in Exhibit__(CEJ-4), the increase to higher
8 voltage customers is smaller than to distribution voltage custom-
9 ers. In addition, the increase in high load factor customers
10 (such as Customer number 1) is less than to low load factor
11 customers (such as Customer number 3).

12 Q. DOES THAT CONCLUDE YOUR DIRECT TESTIMONY?

13 A. Yes, it does.

**BEFORE THE
FLORIDA PUBLIC SERVICE COMMISSION**

**IN RE: PETITION OF GULF POWER) DOCKET NO. 891345-EI
 COMPANY FOR A)
 RATE INCREASE) FILED APRIL 27, 1990**

**SCHEDULES ACCOMPANYING THE
DIRECT TESTIMONY OF
DR. CHARLES E. JOHNSON**

**on behalf of
UNITED STATES FEDERAL EXECUTIVE AGENCIES**

APRIL 1990

EXETER

Associates, Inc.

10801 Lockwood Drive
Suite 350
Silver Spring, MD 20901

GULF POWER COMPANY

Comparison of GPC and FEA Increases to
LP/LPT and PXT Rate Classes

| | <u>LP/LPT</u> | <u>PXT</u> | <u>Total</u> |
|---------------------------------------|-----------------|----------------|----------------|
| Current Base Revenue | 31,055 | 14,559 | 45,619 |
| GPC-Proposed Increase (Percentage) | 3,397 10.94% | 469 3.22% | 3,866 8.48% |
| FEA-Proposed Increase (Percentage) | 2,633 8.48% | 1,233 8.48% | 3,866 8.48% |

GULF POWER COMPANY

Revenue Required by Voltage Level at Present Rates
(\$000)

PRESENT RATE SUMMARY

| DESCRIPTION | Total Rate | Rate LP & LPT | LPT Level 2 | LPT Level 3 | LPT Level 4 | LPT Level 5 |
|-------------------------------|------------|---------------|-------------|-------------|-------------|-------------|
| INVESTMENT | | | | | | |
| 1. Elect. Gross Plant | 1,275,623 | 166,227 | 138,834 | 146,551 | 161,705 | 166,227 |
| 2. Accumulated Depr. | -454,964 | -60,165 | -51,684 | -53,495 | -58,700 | -60,165 |
| 3. NET PLANT | 820,659 | 106,062 | 87,150 | 93,056 | 103,005 | 106,062 |
| 4. Materials & Sup. | 84,733 | 12,395 | 11,829 | 11,829 | 12,264 | 12,395 |
| 5. Other Work. Cap. | -1,921 | -400 | -400 | -400 | -400 | -400 |
| 6. Work Not Bearing Int. | 14,949 | 1,920 | 1,515 | 1,628 | 1,853 | 1,920 |
| 7. Plant Held For Fut. Use | 3,925 | 495 | 495 | 495 | 495 | 495 |
| 8. Unamort. Plant Acq. Adj. | 2,317 | 360 | 360 | 360 | 360 | 360 |
| 9. Inj. & Damages Reserve | -1,101 | -121 | -108 | -110 | -119 | -121 |
| 10. TOTAL ELECTRIC INVEST | 923,561 | 120,712 | 100,840 | 106,859 | 117,457 | 120,712 |
| REVENUES | | | | | | |
| 11. Revenue From Sales | 249,285 | 31,141 | 27,466 | 28,339 | 30,539 | 31,141 |
| 12. Other Oper. Revenues | 6,295 | 574 | 574 | 574 | 574 | 574 |
| 13. TOTAL ADJUSTED REV. | 255,580 | 31,715 | 28,040 | 28,913 | 31,113 | 31,715 |
| EXPENSES | | | | | | |
| 14. Oper. & Maintenance | 113,383 | 13,536 | 12,633 | 12,759 | 13,413 | 13,536 |
| 15. Depreciation | 47,628 | 6,039 | 5,049 | 5,263 | 5,849 | 6,039 |
| 16. Amort. of ITC | -2,041 | -259 | -216 | -226 | -251 | -259 |
| 17. Other Amortization | 73 | 11 | 11 | 11 | 11 | 11 |
| 18. Real & Pers. Prop. Tax | 13,000 | 1,846 | 1,688 | 1,732 | 1,820 | 1,846 |
| 19. Payroll Tax | 3,413 | 374 | 336 | 341 | 369 | 374 |
| 20. Revenue Tax | 4,046 | 328 | 328 | 328 | 328 | 328 |
| 21. Other Taxes | 11,517 | 1,441 | 1,441 | 1,441 | 1,441 | 1,441 |
| 22. Adj. to Other Taxes | -1,154 | -1,393 | -1,393 | -1,393 | -1,393 | -1,393 |
| 23. Exp. Excl. Inc. Tax | 179,865 | 21,924 | 19,876 | 20,256 | 21,588 | 21,924 |
| 24. REVENUES | 255,580 | 31,715 | 28,040 | 28,913 | 31,113 | 31,715 |
| 25. EXPENSES | -179,865 | -21,924 | -19,876 | -20,256 | -21,588 | -21,924 |
| 26. OPERATING INCOME | 75,715 | 9,791 | 8,164 | 8,657 | 9,525 | 9,791 |
| INCOME TAX CALCULATION | | | | | | |
| 27. TAX | 28,492 | 3,685 | 3,072 | 3,257 | 3,584 | 3,685 |
| 28. LESS INC. TAX DEDUCT | -13,244 | -1,731 | -1,446 | -1,532 | -1,684 | -1,731 |
| 29. INTEREST SYNCH. | -442 | -58 | -58 | -58 | -58 | -58 |
| 30. TOTAL INCOME TAXES | 14,806 | 1,896 | 1,568 | 1,667 | 1,842 | 1,896 |
| 31. TOTAL EXPENSES | 194,671 | 23,819 | 21,444 | 21,924 | 23,430 | 23,819 |
| 32. REVENUES | 255,580 | 31,715 | 28,040 | 28,913 | 31,113 | 31,715 |
| 1. EXPENSES | -194,671 | -23,819 | -21,444 | -21,924 | -23,430 | -23,819 |
| 2. NET OPERATING INCOME | 60,909 | 7,896 | 6,596 | 6,989 | 7,683 | 7,896 |
| 3. OPERATING REVENUES | 255,580 | 31,715 | 28,040 | 28,913 | 31,113 | 31,715 |
| 4. OPERATING EXPENSES | 194,671 | 23,819 | 21,444 | 21,924 | 23,430 | 23,819 |
| 5. RETURN | 60,909 | 7,896 | 6,596 | 6,989 | 7,683 | 7,896 |
| 6. RATE OF RETURN | 6.59501 | 6.54111 | 6.54095 | 6.54082 | 6.54104 | 6.54111 |

GULF POWER COMPANY

Comparison of FEA-Proposed LP/LPT Rate with
Gulf Power Proposed Rate

| | <u>Gulf Power</u> | <u>FEA</u> |
|---------------------|-------------------|---------------|
| Customer charge | \$230.00/Bill | \$230.00/Bill |
| Demand charge | | |
| Standard | 8.52/kW | 9.12/kW |
| TOU: Maximum Demand | 4.15/kW | 4.44/kW |
| : On-peak Demand | 4.52/kW | 4.84/kW |
| Energy charge | | |
| Standard | .00568/kWh | .006637/kWh |
| TOU: On-Peak | .01211/kWh | .014150/kWh |
| TOU: Off-peak | .00300/kWh | .003505/kWh |

GULF POWER COMPANY

Rate Schedule CR
(cents/kWh)

| | <u>Gulf Power</u> | <u>FEA</u> | | |
|--------------|-------------------|---------------------|----------------|---------------------|
| | | <u>Distribution</u> | <u>Primary</u> | <u>Transmission</u> |
| Standard | 2.081 | 2.151 | 2.065 | 2.022 |
| TOU: On-peak | 2.169 | 2.242 | 2.152 | 2.107 |
| Off-peak | 2.047 | 2.116 | 2.031 | 1.989 |

GULF POWER COMPANY
LP/LPT Voltage Discounts

| | <u>Gulf Power</u> | <u>FEA</u> |
|------------------------|-------------------|-----------------|
| Demand Discount | | |
| Primary | \$.25/kW 1% | \$.70/kW 6% |
| Transmission | \$.70/kW 2% | \$1.30/kW 9% |
| Energy Discount | | |
| Primary | 1% | 4% |
| Transmission | 2% | 6% |

GULF POWER COMPANY
LP/LPT Bill Comparison

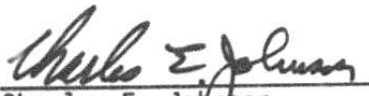
| <u>Rate Class</u> | <u>KW</u> | <u>KWH</u> | <u>Bill Under Present Rates</u> (\$) | <u>Bill Under FEA Rates</u> (\$) | <u>Percentage Increase</u> (%) |
|-------------------|-----------------------|-----------------------------|---|-------------------------------------|-----------------------------------|
| 1. LP | 438 | 288,000 | | | |
| Distribution | | | 135,690 | 145,797 | 7.45% |
| Primary | | | 134,079 | 137,629 | 2.65% |
| Transmission | | | 131,416 | 132,635 | 0.93% |
| 2. LP | 658 | 288,000 | | | |
| Distribution | | | 152,190 | 168,348 | 10.62% |
| Primary | | | 149,919 | 158,332 | 5.61% |
| Transmission | | | 146,068 | 151,754 | 3.89% |
| 3. LP | 1,315 | 288,000 | | | |
| Distribution | | | 201,465 | 235,604 | 16.00% |
| Primary | | | 197,223 | 220,159 | 11.63% |
| Transmission | | | 189,894 | 208,850 | 10.02% |
| 4. LPT | 5,000 max 5,000 on | 600,000 on 1,800,000 off | | | |
| Distribution | | | 1,205,796 | 1,326,433 | 10.00% |
| Primary | | | 1,188,565 | 1,207,801 | 2.92% |
| Transmission | | | 1,159,335 | 1,120,009 | 0.24% |

AFFIDAVIT

The undersigned, being duly sworn by me, Notary Public for the State of Maryland, deposes and says as follows:

That the information and data contained in the testimony, Schedules and/or Attachments I prepared for filing herewith in Florida Public Service Commission Docket No. 891345-EI is true and accurate to the best of my knowledge, information and belief.

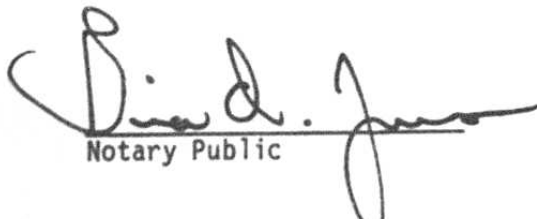
FURTHER AFFIANT SAYETH NOT.


Charles E. Johnson

Sworn and Subscribed before me this 26 day of April, 1990.

My Commission Expires:

July 1, 1990


Notary Public