BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION ORIGINAL FILE COPY

In Re: Petition of Gulf Power Company for an Increase in its Rates and Charges	Docket No. 891345-EI Filed: May 15, 1990

REBUTTAL TESTIMONY OF
ROBERT SCHEFFEL WRIGHT

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Respectfully submitted,

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BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

DOCKET NO. 891345-EI

REBUTTAL TESTIMONY

OF

ROBERT SCHEFFEL WRIGHT

ON BEHALF OF

CITIZENS OF THE STATE OF FLORIDA

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

A: My full name is Robert Scheffel Wright. I am employed as Vice President and Principal Consultant with the consulting firm, West Park Group, Inc. The firm's business address is 501 East Tennessee Street, Suite D, Tallahassee, Florida 32308. I am also employed as Resident Economist and Special Consultant on regulatory and economic matters with the law firm of Wiggins & Villacorta, Post Office Drawer 1657, Tallahassee, Florida 32302.

Q: **Are you the same Robert Scheffel Wright who has previously filed direct testimony in this proceeding on behalf of the Citizens of the State of Florida?**

A: Yes, I am.

Q: **What is the purpose of your rebuttal testimony?**

REBUTTAL TESTIMONY OF ROBERT SCHEFFEL WRIGHT

A: I shall rebut numerous assertions and arguments made by Mr. Jeffry Pollock against the Equivalent Peaker and Refined Equivalent Peaker cost of service methods. Specifically, I will rebut his proposal that all production plant costs should be classified as demand-related. My testimony will demonstrate that an example that he presents in his testimony to illustrate problems with peaker type methods is an inapt analogy and demonstrates either a mis-characterization or a basic misunderstanding of the way that such methods work. I will rebut his assertion that the Basic Equivalent Peaker and Refined Equivalent Peaker cost methods are subject to what he defines as a "fuel symmetry" problem. I will rebut his suggestion that the EP and REP methods need to be "corrected" to reflect differences in reliability between peaking type units and baseload coal-fired units. I will also rebut various other assertions and arguments that he makes in his direct testimony.

I shall also offer what I would characterize as "rebuttal commentary" on two issues discussed by Mr. Pollock and by Stone Container Corporation's Witness Tom Kisla: (1) the possibility of relieving self-generating customers (SGCs) from the production and bulk transmission reservation charges in Gulf's Standby Service tariff for maintenance power service taken by SGCs in coordination with the utility, and (2) the possibility of permitting SGCs to take power as supplemental power, under Gulf's Supplemental Energy tariff, during operationally defined off-peak periods, even when the customer has other generation capacity available. I characterize my testimony on these subjects as "rebuttal commentary" because I believe that, under some conditions, these proposals may have some merit, and because my intention is to identify and clarify certain issues arising from them, rather than to attack and refute them.

Classification of Production Plant Costs

Q: At page 24 of his testimony and elsewhere therein, Mr. Pollock argues that all production capital costs are demand-related and should be allocated to classes using a peak demand allocator. What is your response?

A: My response is that this is an arbitrary classification of production plant costs that completely ignores the economic considerations that enter into utility generation expansion planning decisions. Utility generation planning generally consists of two phases. In the first, using reliability criteria, the utility identifies needs for additional capacity and the timing of additional capacity requirements. In the second phase, an economic analysis is conducted to determine what type of capacity should be added, considering the energy loads to be served. Classifying and allocating all production plant costs on the basis of peak demands completely ignores the important economic considerations that drive decisions regarding what type of plant to build, and therefore how much will be spent on production plant.

Q: **At page 9 of his testimony, Mr. Pollock states that "when the hours of use are considered, the capital cost per kilowatt-hour for the base load plant is usually less than the capital cost per kilowatt-hour for the peaking plant. Of course, since the fuel costs of base load plants are generally lower than the fuel costs of peaking plants, the overall cost per kilowatt-hour for base load plants is also less than the overall cost per kilowatt-hour for peaking plants." What are your thoughts on this statement?**

A: Frankly, I believe that this statement supports equivalent peaker type cost methods. As Mr. Pollock puts it, <u>when hours of use are considered</u>, capital costs per kilowatt-hour are lower for baseload plants. I readily recognize that utilities plan their system in order to minimize total costs and not blindly to achieve fuel cost savings. Obviously, a great enough capital cost would wipe out any potential benefits to be realized from fuel savings, and thus building baseload units would not be economically viable. Again, I am entirely comfortable with the proposition that in planning, utilities endeavor to minimize total average costs based on the hours a new generating unit is planned or expected to run. This affirms that hours of use or hours of run time are obviously important in the utility's consideration of what type of unit and therefore how costly a unit to build.

Near-Peak Demand Cost Allocation Method

Q: **What is your opinion of Mr. Pollock's proposed Near-Peak Demand cost allocation method?**

A: I cannot support or agree with the overall cost allocation method proposed by Mr. Pollock because of its failure to recognize the important role of energy requirements in generation expansion planning decisions.

His proposed method would classify all production plant costs as demand-related; this simply bears no relation to actual cost causation in generation expansion planning, in which both peak demands and energy requirements play an important role, the peak demands usually determining amounts and timing of plant additions and the energy requirements determining the type of plant to be built.

His classification principle reduces to: "If it's a production plant cost, it must be demand-related." This is clearly the most arbitrary standard for classifying production plant that has been advanced in this case. The only other standard that could possible rival its arbitrariness would be its polar opposite: "If it's a production plant cost, it must be energy-related."

I do believe that his proposed near-peak demand allocator may be a reasonable allocation factor to use for allocating those costs that are appropriately classified as being related to or driven by system coincident peak demands. However, before endorsing it or rejecting it, I would want to see additional information on reliability criteria values in his "near-peak" hours and in the peak and near-peak hours of the fall, spring, and winter months.

If the Commission is to use a near-peak demand factor for allocating demand-related production and transmission costs in this proceeding, it must be aware of several factors. First, in some cases, notably the Christmas holidays of 1989, Gulf does achieve significant system peaks in the winter. Because the implication of Mr. Pollock's near-peak allocation factor, which is based entirely on summer hours, is that there are no peak-demand-related costs in the winter, the Commission must, over time, continue to monitor Gulf's and the Southern Company's winter demand growth. The Commission must also consider the implications of adopting such a factor for rate design, especially relative to seasonal rate differentiation; allocating no demand-related production and transmission costs on the basis of winter peak demands seems to suggest that it would not be proper cost-based ratemaking to recover these costs in winter rates.

Second, the Commission should at least use the 12 CP allocation factor specifically for the purpose of allocating capacity revenues received by Gulf or capacity payments made by Gulf pursuant to the Southern Company's Intercompany Interexchange Contract, because IIC payments and revenues are determined on the basis of each monthly peak regardless whether it occurs in the summer, winter, spring, or fall.

Baseload Unit Cost Overruns

Q: **In his discussion at pages 11-12, Mr. Pollock makes the point that new baseload units may, by the time they come into service, cost much more than they were projected to cost when they were originally planned and contracted for. Does this affect your view as to the proper classification of the cost of such units above the cost of a peaker?**

A: No, it does not. While it is undoubtedly true that baseload units have in recent years been brought into service at costs significantly higher than originally projected, it does not follow that the excess costs should be classified as demand-related and allocated on the basis of class contributions to peak demands. Cost analysts, and utility commissioners, must look back to the utilities' original decisions to build baseload units, because those decisions are what eventually resulted in greater than anticipated costs. The original decision would have been based primarily on economic considerations driven by all classes' energy loads, that is, on lower costs to be afforded the utility and its ratepayers by building a baseload plant that would serve broad energy loads. Therefore, it is still appropriate to classify the plant costs above the costs of peaking capacity as energy-related.

You also have to address the question, "Upon whom would the burden of cost overruns otherwise be imposed?" There are two obvious choices at the outset. First, the cost might be imposed on the utility's shareholders, based on the argument that they should bear some risk and responsibility for cost overruns and for keeping costs in line with projections. Alternatively, the costs might be borne by the utility's general body of ratepayers.

Once the prudency issue has been settled, though, the question of the appropriate classification and allocation of the allowed plant costs must still be addressed. To the extent that energy loads contributed substantially and significantly to the utility's decision to build the baseload unit, energy should be the basis for allocating the costs of the plant above those that would have been incurred to build a peaking unit. It would simply be wrong -- inconsistent with cost-causation principles and thus inequitable -- to impose these energy-driven costs on classes and customers based on their peak demands.

Q: On page 12, Mr. Pollock makes the statement that "it is wrong to assume that observed differences in capital costs are always the result of conscious decisions to spend more per kW in order to achieve lower operating costs." How do you respond to this statement?

A: While the statement is probably true as far as it goes, it does not constitute a valid criticism of peaker type cost of service methods. In particular, the statement is misleading if it attempts to create the impression or idea that excess capital costs due to unanticipated cost overruns should be classified as demand-related. (This would be true for cost overruns associated with a peaking unit, because the decision to build the peaker would have been driven by peak demand growth, but it is not true for baseload plant cost overruns.)

In the first place, neither the Equivalent Peaker method nor the Refined Equivalent Peaker method assume anything about the higher capital costs of baseload units, whether intended or unanticipated. These methods recognize that, in order to be prudent and reasonable, higher capital costs must have been incurred consciously by the utility. Surely, with substantial capital expenditures on the line, any decision to build an intermediate or baseload plant, at a higher capital cost than that required to build a peaker, had best be conscious, well-thought out, well-analyzed, and well-documented. Secondly, as I discussed above, although the actual difference between the cost of a baseload unit and a peaker may be greater than originally anticipated, the excess costs are still the result of the conscious decision by the utility to build the baseload unit, a decision driven by the energy loads that the unit was expected to serve.

<u>Break-Even Point Analysis and Refined Equivalent Peaker Method</u>

Q: **In his discussion beginning on page 15, Mr. Pollock argues that if a new generating unit "is expected to run beyond a certain point, called the break-even point, it is more economical to install base load capacity rather than peaking capacity. In other words, once the break-even threshold is reached, additional energy use (and the fuel cost savings resulting therefrom) would not affect the investment decision." Is this a valid argument for preferring the Refined Equivalent Peaker method over the Basic Equivalent Peaker method?**

A: No. While it may, under some circumstances, be true that a utility would decide to build a baseload unit if needed additional generating capacity were expected to run more than a certain number of hours, it does not follow that the critical hours are those under the high-demand end of the load duration curve.

In the first place, any sufficient number of hours in which the unit would dispatch could drive the decision to build baseload plant, regardless when these hours occurred. Mr. Pollock's assertion that it is the hours under the high-demand end of the load curve that drive the decision is simply a "what if" hypothesis; other "what if" hypotheses involving off-peak load growth could produce the same result. By the rationale of the break-even analysis, any hours in which the unit would dispatch could drive the decision, regardless whether they were under the high-demand end or another segment of the load curve. In Florida, we have even observed a case where a utility built a new baseload coal unit, even though the unit's capacity was not needed for reliability purposes until several years later, in order to lower total costs. This investment decision must have been driven by off-peak as well as on-peak energy loads.

Secondly, as I understand the process, the economic analyses in generation expansion planning are based on all energy loads that the utility expects to serve over a fairly long time horizon. Thus, because the Basic EP method allocates the additional capital costs of baseload units above the costs of peakers according to all energy consumption, it more accurately reflects actual generation planning and decisions.

Q: **Do you have any thoughts about Mr. Pollock's car example on page 16 of his testimony?**

A: Yes. This example, and most particularly the conclusion that Mr. Pollock asserts at lines 18-19, shows a clear misunderstanding or mis-characterization of how the EP and REP methods work. In his example, Mr. Pollock hypothesizes a scenario where a fuel-efficient car is bought and then driven 200 miles by one customer and 400 miles by another. He asserts that "[t]he EP and REP methods . . . would assign twice as much car [cost] to the second customer." This is simply false. Following this analogy, albeit an inapt one, the peaker methods would allocate only the difference between the cost of the fuel-efficient car and the gas-guzzling alternative on the basis of the two customers' mileage. The initial capital cost of the gas-guzzling alternative would be allocated on the basis of a demand allocator, assuming that one could be developed for this example.

Reliability Differences Between Baseload and Peaking Units

Q: At pages 20-22 of his testimony, Mr. Pollock asserts that there are significant reliability differences between baseload and peaking units, necessitating adjustments in the peaker cost methods' calculation of equivalent peaker costs. What is your response?

A: My response is that his analysis is incomplete and that it is not at all clear that the appropriate adjustments would operate in the way that he suggests.

While it is true that the NERC (North American Electric Reliability Council) report cited by Mr. Pollock shows that peaking units have substantially higher forced outage rates than do baseload units, it is not clear that they are less reliable. First, it is significant to observe that the forced outage rate statistic is outage hours divided by run hours; because peakers run very little, around 200 hours per year according to the NERC data, any outage will result in sizeable forced outage rates. Additionally, infrequent usage may tend to result in more frequent start-up problems that would not be encountered if the unit were run continuously for substantial periods of time.

Additionally, to evaluate and understand reliability, one should consider not only forced outage rates but also availability factors and equivalent availability factors in evaluating whether one generating technology is more reliable than another. Significantly, the equivalent availability factor (EAF) is the primary variable, along with unit heat rate, used by this Commission to determine Generating Performance Incentive Factors. From the same NERC Generating Availability Report, 1984-1988 used by Mr. Pollock, I have extracted data on availability factors (AFs) and equivalent availability factors (EAFs) for baseload coal units and the three types of peakers addressed by Mr. Pollock in his discussion on this issue. These data are reported in my Exhibit ____ (RSW-RT-1). This is comparable to, and in fact is really an expanded version of, Schedule 3 of Mr. Pollock's Exhibit JP-1. Ranked by both Availability Factor and Equivalent Availability Factor, coal-fired baseload units appear to be less reliable than any of the three categories of peakers. Coal units' AF for the 1984-1988 period was 82.77 percent, as compared to AFs above 90 percent for the peakers; coal units' EAF for the period was 79.72 percent, as compared to EAFs of 85 percent to 95 percent for the peakers. While I am not proposing any reliability adjustments in computing the cost of equivalent peaking capacity in the EP and REP studies, these data appear to show that baseload coal units are less available than are peakers, such that any adjustment might well work in the opposite direction of that suggested by Mr. Pollock.

Additionally, I would expect Mr. Pollock to be familiar with the use of combustion turbine and other peaking technologies in cogeneration applications where very high availability and capacity factors are achieved. Indeed, while I was still on the Commission staff, one of Mr. Pollock's clients in this case made presentations to us regarding its great success in attaining capacity factors above 90 percent using CT technology in cogeneration applications. This performance also shows the high reliability of peaking technologies when they are used in long-run-time applications.

<u>Alleged Fuel Symmetry Problem</u>

Q: On page 12 of his testimony, Mr. Pollock begins his discussion of the Equivalent Peaker and Refined Equivalent

Peaker methods' alleged fuel symmetry problem. Later, at page 19, he goes on to state that by a peaker type cost study, a high load factor customer class would typically be allocated above average capital costs. What is your response?

A: It is true that by peaker studies, high load factor customer classes are allocated above-average plant costs when those costs are defined and expressed in terms of dollars per kW of capacity. It is not true, however, that they are allocated greater than average costs per kilowatt-hour for these units. Nor is it necessarily true that this is a problem, flaw, or failing with equivalent peaker methods. This line of criticism essentially refuses to consider that cost per kilowatt of capacity for a base load unit is greater than the cost per kilowatt of capacity for a peaker, and that it is the energy loads of all classes that contribute to the utility's decision to build (baseload or intermediate) plants that cost more per kW.

I believe that it is this fundamental, definitional assertion regarding plant costs per kilowatt that is at the root of Mr. Pollock's fuel symmetry argument. In effect, he defines an appropriate share of capital costs to be expressed only in terms of dollars per kW while ignoring the contribution of energy loads to higher plant costs. I reject this because it ignores the contributions of energy loads, not only those of high load factor customer classes, but also those of low and medium load factor customer classes as well, to the utility's decision to build more expensive production plants than they would otherwise build in order to meet only peak demands.

Q: Do you believe that the "fuel symmetry adjustment" suggested by Mr. Pollock at pages 40-43 of his testimony is appropriate?

A: No, for two reasons. First, Mr. Pollock and I disagree as to the proper measure of fuel symmetry. I believe that he considers or defines a fuel symmetry problem to exist when a cost study is employed other than one that classifies all production plant costs as demand-related and in which no adjustment is made to pricing fuel on an average cost basis. In other words, he defines fuel symmetry relative to his preferred cost of service methodology. By contrast, I believe that the appropriate measure of "fuel symmetry" or fuel equity is the relationship between the percentage of baseload plant cost responsibility borne by each rate class and the percentage of inexpensive baseload-generated electricity each class receives (or is effectively permitted to buy) at the baseload fuel cost. As my direct testimony demonstrates, with one exception-- the GSD class in the Refined Equivalent Peaker study-- the Basic Equivalent Peaker study provides a closer match between class baseload plant cost responsibility and baseload energy received than the other cost studies available at that time. In my opinion, this demonstrably better match between baseload plant cost responsibility and baseload fuel received is the "proof in the pudding" that defeats the argument as to an alleged fuel symmetry problem with peaker methods.

Second, the analysis underlying his proposed fuel symmetry adjustment is based on hypothetical peak period energy costs that include hypothetical peaker energy that is more than 100 times Gulf's projected 1990 peaker generation. Mr. Pollock's analysis in Schedule 12 of Exhibit JP-1 is based on hypothetical generation from peaking capacity of 330,246 MWh (Schedule 12, page 3 of 4). Gulf's projected peaker generation for 1990 is 211 MWh.

Q: At page 19, Mr. Pollock asserts that peaker type methods somehow inappropriately "de-average" production plant costs. What is your response to this?

A: Peaker methods do not "de-average" plant costs. They express the energy-related portion of production plant costs on an average cents-per-kWh basis rather than on the dollars-per-kW basis that Mr. Pollock, and industrial intervenors generally, advocate. I believe that expressing these energy-related costs on an average cents-per-kWh basis is entirely appropriate because of the energy and hours of run time considerations that led the utility to build baseload units rather than peaking units.

Q: Mr. Pollock also seems to assert that the alleged "de-averaging" of production plant costs, as he styles it, is inconsistent with collecting fuel and variable operation and maintenance costs on an average per kWh basis. What is your response to this?

A: Well, because I believe that energy-related production plant costs are appropriately averaged, as it were, over all kilowatt-hours, I see no problem with expressing fuel and operations and maintenance costs in the same way. Both are expressed on an average per-kWh basis because both are driven by energy and hours of use considerations.

<u>Applicability of Reservation Charges to Scheduled Maintenance Power Service</u>

Q: Both Mr. Pollock and Stone Container Corporation's Witness Tom Kisla address a proposal to excuse demands registered by self-generating customers (SGCs) during certain maintenance power outages from paying the ratcheted Reservation Charges applicable under Gulf's Standby Service (SS) rate schedule. What commentary do you have to offer on this proposal?

A: First, in principle, I believe that a fair case can be made for excusing demands registered during scheduled, usefully coordinated maintenance outages from the Reservation Charge provisions of Gulf's SS rate. This is because if the outages are indeed usefully coordinated, they will presumably occur at times when they have no cost impact on the demand-related production and transmission costs that are the components of Gulf's Reservation Charge.

However, I do want to make two points regarding this proposal. First, scheduling outages will not enable Gulf to avoid local facilities costs, so if the SGC's power requirements during a scheduled maintenance outage cause its total standby demand imposed on Gulf to increase, then it cannot properly be excused from paying the additional Local Facilities Charges required by the tariff. (If the Commission implements proper local facilities charges for all demand-metered rate classes in this case, based on maximum customer demand, then any increase in total demand, whether for standby or supplemental service, would properly result in an increase in the customer's demand subject to local facilities charges.)

Second, the sought-after relief from the Reservation Charge should only be granted (1) if the desired maintenance power is used in hours that do <u>not</u> include a <u>Gulf</u> peak that determines Gulf's IIC payments or revenues, or (2) if the Southern Company operating committee agrees to let Gulf deduct any such maintenance power demands from its registered peaks so as to negate any effect on Gulf's IIC payments or revenues. Assuming useful coordination and timely advance scheduling, I believe that this would be a reasonable request.

<u>"As-Available" Supplemental Energy Purchases, or "Economic Backup Power" Under Gulf's SE Rate</u>

Q: **Mr. Pollock and Mr. Kisla also suggest that SGCs be permitted to purchase power from Gulf under the same general terms and conditions as presently apply under Gulf's Supplemental Energy (SE) Rider. What commentary do you have to offer on this proposal?**

A: I do not see anything conceptually wrong with allowing an SGC to take power from a utility during operationally defined off-peak periods, even though the SGC has generating capacity available to serve its load, so long as the rates under which such power service is taken are appropriately designed and administered. First, the rate should properly include (1) a local facilities charge, applicable to the customer's maximum demand, regardless when it occurred, designed to recover distribution costs, and (2) a non-fuel energy charge equal to the class energy unit cost. Second, by Order No. 17568, the Commission approved the SE Rider on the condition that it become a separate rate class in the Company's next rate case. Although I believe they are surmountable, I can foresee some administrative difficulties in dealing with customers taking backup and maintenance power under Rate SS, ordinary supplementary power under Rate LP/LPT or PXT, and "economic backup" power or "as-available" supplemental power under Rate SE. Finally, along these lines, I would also comment that permitting such service to be taken would require particular diligence by the utility in measuring and monitoring the customer's usage to assure that the customer did not actually take power service under one rate schedule that should properly be billed under a different rate schedule.

Q: **Does this conclude your rebuttal testimony?**

A: Yes, it does.

Exhibit ____ (RSW-RT-1)
Docket No. 891345-EI
Gulf Power Company

GULF POWER COMPANY

Comparison of Outage Rates and Availability Factors for Coal-Fired Baseload and Peaking Technologies

			Peaking Units		
Line	Description	Coal-Fired Baseload Units	Jet Engine Units	Gas Turbine Units	Diesel Units
1	Forced Outage Rate	6.87%	31.55%	53.49%	56.35%
2	Effective Forced Outage Rate	9.73%	37.53%	56.72%	59.90%
3	Availability Factor	82.77%	91.37%	90.92%	95.38%
4	Equivalent Availability Factor	79.72%	85.11%	85.10%	95.09%

SOURCE: NERC Generating Availability Report, 1984-1988, August, 1989.

CERTIFICATE OF SERVICE
Docket No. 891345-EI

I HEREBY CERTIFY that a true copy of the foregoing has been furnished by U.S. Mail*, hand-delivery**, or by facsimile*** to the following parties on this 15th day of May, 1990.

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