State of Florida

Public Service Commission

CAPITAL CIRCLE OFFICE CENTER • 2540 SHUMARD OAK BOULEVARD
TALLAHASSEE, FLORIDA 32399-0850

-M-E-M-O-R-A-N-D-U-M-

DATE: AUGUST 5, 1999

TO: DIRECTOR, DIVISION OF RECORDS AND REPORTING (BAYO)

FROM: DIVISION OF ELECTRIC AND GAS (WHEELER)
DIVISION OF LEGAL SERVICES (COLLINS)

RE: DOCKET NO. 990315-EI - PETITION BY GULF POWER COMPANY FOR APPROVAL OF RATE SCHEDULE REAL TIME PRICING CONSERVATION PROGRAM (RTP)

AGENDA: 8/17/99 - REGULAR AGENDA - TARIFF FILING - INTERESTED PERSONS MAY PARTICIPATE

CRITICAL DATES: NOVEMBER 11, 1999 8-MONTH EFFECTIVE DATE

SPECIAL INSTRUCTIONS: NONE

FILE NAME AND LOCATION: S:\PSC\EAG\WP\990315a.RCM

CASE BACKGROUND

The Commission approved Gulf Power Company's (Gulf's) Real Time Pricing (RTP) Pilot Conservation Program effective February 7, 1995 in Docket No. 941102-EI (Order No. PSC-95-0256-FOF-EI). The program was scheduled to end on December 31, 1998, unless extended by order of the Commission.

On June 16, 1998, the Commission approved an extension of the pilot RTP rate schedule until May 31, 1999, to allow Gulf the opportunity to review and examine the results of its experimental program, and to file for approval of a permanent RTP rate.

Gulf filed for approval of a permanent RTP rate schedule on March 11, 1999. At its May 5, 1999 Agenda Conference, the Commission voted to suspend the proposed permanent RTP rate schedule tariffs to allow the staff time to review the final report

on Gulf's pilot program, and to conduct any discovery necessary to evaluate the proposed permanent program. To avoid disrupting service to existing RTP customers, the Commission also voted to allow existing RTP customers to continue service under the existing rate beyond May 31, 1999, until the Commission votes on the proposed new rate. This staff recommendation addresses Gulf's proposed permanent RTP rate schedule.

DISCUSSION OF ISSUES

ISSUE 1: Should the Commission approve Gulf Power Company's proposed Real Time Pricing rate schedule tariffs?

RECOMMENDATION: Yes, however, such approval should not constitute a determination that the rate is a cost-effective conservation program whose costs are appropriate for recovery through the Energy Conservation Cost Recovery Clause. Gulf should be required to file on a quarterly basis certain information on the rate as discussed in the staff analysis. In addition, any proposed changes to the manner in which the RTP prices are determined (other than the updating of the "M" multipliers to reflect new lambda forecasts) must be filed with the Commission for approval. [WHEELER]

STAFF ANALYSIS: The pilot RTP rate schedule was offered beginning in February 1995 as an optional rate available to a maximum of 12 customers whose monthly maximum demands exceeded 2,000 kilowatts (kW). At its February 4, 1997 agenda conference, the Commission approved Gulf's request to expand the maximum number of customers to 24, in order to expand availability of the program to a broader base of customer types (Docket No. 961483-EI, Order No. PSC-97-0217-FOF-EI). Gulf filed for approval of a permanent RTP rate schedule on March 11, 1999.

THE RTP PILOT PROGRAM

The first six RTP customers began service under the RTP rate in February and March of 1995. These industrial customers were considered by Gulf to have the greatest capability to respond to the day-ahead hourly price signals. By the summer of 1996, there were eight RTP customers, and by the summer of 1997 there were 12. In the last summer of the program, 1998, there were 20 customers on the rate. A total of 22 customers took service under the pilot rate, two of which left the program to take service under another rate offering. The last customers to sign up for the program were generally commercial in nature, and their demand for electricity was more weather-sensitive. Currently, there are only six customers on the RTP rate.

RTP HOURLY PRICES

RTP is a time-of-use rate schedule under which the customer pays a unique rate for each hour of the day. The customer is

provided by 4:00 p.m. of each day with 24 hourly energy prices that go into effect beginning at midnight of the following day, allowing them to schedule their use of electricity in a way that minimizes their total bill. The rate also includes a monthly customer charge of $1,000. When the pilot program was submitted for approval by Gulf, they expected the average RTP price, based on 1994 data, to be 3.65 cents per kwh. It important to recognize that Gulf's RTP program was not designed to be revenue neutral with respect to embedded cost rates. A detailed description of the rate design is is presented in Attachment 1.

Based on data filed in Gulf's FERC Form 1 (page 304, Sales of Electricity by Rate Schedules) for the years 1995 through 1997, the following table shows a comparison of the revenue in cents per kwh Gulf has collected from the RTP customers compared with its traditional embedded cost industrial rate schedules (LPT and PXT):

Rate	1995	1996	1997
RTP(CENTS/KWH)	3.9	3.6	3.6
PXT(CENTS/KWH)	4.2	4.1	4.0
LPT(CENTS/KWH)	4.6	4.5	4.5

This table shows that RTP has resulted in lower rates than those offered under standard embedded cost rates.

EARNINGS IMPACT

As a condition for approval of the RTP rate, Gulf was required to filed quarterly reports that detail the costs of the RTP pilot program. The costs were to be divided into two categories: 1) the revenue shortfall or gain experienced, which is the difference between what the customer would have paid under the otherwise applicable rate schedule and what the customer actually paid on the RTP rate, and 2) all other RTP program costs.

The report must also show the impact of the total costs of the program on earnings in terms of basis points as reflected in the monthly surveillance reports filed with the Commission. The following table summarizes the shortfall/gain and earnings impact from the quarterly reports filed for the pilot program.

YEAR	QUARTER	SHORTFALL/ (GAIN)	SHORTFALL TO DATE	IMPACT ON ROE (BASIS POINTS)
1995	1	$449,964	$449,964	10
1995	2	$527,378	$977,343	N/A
1995	3	($549,378)	$428,291	8
1995	4	$1,173,416	$1,601,708	31
1996	1	$1,257,704	$2,859,412	44
1996	2	$1,013,744	$3,873,156	55
1996	3	$24,584	$3,897,740	66
1996	4	$1,999,120	$5,896,859	75
1997	1	$2,307,535	$8,204,394	95
1997	2	$1,989,959	$10,194,353	112
1997	3	$252,517	$10,446,870	116
1997	4	$3,014,720	$13,461,590	131
1998	1	$3,117,692	$16,579,282	146
1998	2	($2,554,371)	$14,024,911	N/A
1998	3	($1,454,031)	$12,570,880	37
1998	4	$2,772,964	$15,343,844	34
1999	1	$2,479,742	$17,823,587	25

As the above table indicates, the RTP program has resulted in an approximate revenue shortfall of $18 million from the inception of the pilot program through the first quarter of 1999. The "Other Costs" of the program totaled $157,748 during the period.

This shortfall has affected Gulf's earnings by as much as 146 basis points (first quarter 1998). It should be noted that there were some quarters in which the RTP program resulted in higher revenues than would have been produced by standard rates. This occurred in the higher-priced summer months.

PILOT PROGRAM FINAL REPORT

As a condition for approval of the RTP pilot program, the Commission required Gulf to submit a final report evaluating the effectiveness of the program. The report was filed by Gulf on May 3, 1999, and contains both quantitative and qualitative evaluations of customer response to the RTP program. The report addresses the five stated objectives of the program contained in Gulf's petition for approval of the program: conservation, economic efficiency, customer response, value-based pricing, and customer satisfaction. The following sections discuss the some of the major findings contained in the final report.

Quantitative Analysis - Included in Gulf's final report was a quantitative analysis of the pilot program that sought to obtain estimates of customer response to the price signals. This was necessary since one of the primary goals of the program was to encourage conservation through reductions in peak demand. Gulf hired an independent firm, Regional Economic Research, Inc., to do the analysis. The analysis was conducted using hourly loads, weather, and RTP prices for the period beginning January 1997 through September 1998. Twenty customers were studied. They were divided into five separate market segments: industrial, government, health care, other commercial, and other commercial with self-generation capability.

Models were developed to simulate what loads would be under RTP prices and under average time-of-use (TOU) prices. The TOU prices were differentiated by season (winter-summer) and by period (on- and off-peak).

The differences between these two sets of simulated loads were calculated to develop an estimate of the impact of the RTP prices for each hour. The results of this analysis showed an estimated maximum reduction in demand attributable to the RTP prices of about 23 Megawatts (MW). This maximum impact occurred during an hour in which the RTP price was 70 cents per kwh.

Analysis of the impact by market segment showed that most of the reduction was attributable to the industrial segment, consisting of customers such as oil and gas extraction, paper, food, chemicals, and stone, clay and glass. The remaining segments showed very little demand reduction attributable to the RTP prices. The health care segment showed impacts of less than one MW. The government agency segment accounted for about 2 MW, and the

remaining commercial customers accounted for 3 MW, mainly attributable to those with on-site generation.

Qualitative Analysis - Gulf commissioned Epley Marketing Services to conduct interviews with RTP customers to assess their reactions to the RTP pilot program. The interviews were conducted between November 1998 and January 1999 with representatives of 21 RTP customers.

The analysis found that on the whole, participants were satisfied with the RTP rate schedule, and with Gulf Power's administration of it. Customers felt that the RTP pricing allowed them to be "in control" of their electric usage. The program was most attractive to those customer who had the ability to respond to the price signals. These customers were typically energy-intensive manufacturing companies who possessed the tools necessary to maximize the benefit of the program, such as an awareness of usage patterns, flexible staff or processes, and on-site generation.

The interviews revealed that only a small number (12%) of the RTP participants believed that they could mount a substantive reaction to the RTP price signals. The remaining 88% of the customers believed that they had minimal or no ability to alter their energy usage in response to the RTP prices. They also believed that the key to achieving significant savings under the program was on-site generation. Only 12% of the customers said that they possessed substantial on-site generation capability. When customers could respond to the price signals, they were most likely to engage in equipment adjustment or scheduling modification.

CONSERVATION

When Gulf filed for approval of the RTP pilot program, they believed that the program would prove to be a conservation program that would result in cost-effective reductions in peak demand. In its 1995 conservation goals docket (Docket No. 941172-EI), Gulf submitted RTP as program they would utilize to achieve their conservation goal for peak demand reduction. However, Gulf to date has not petitioned to recover any of the costs of the pilot program through the conservation cost recovery clause.

In its 1998 conservation goals docket (Docket No. 971006-EG), Gulf filed a cost-effectiveness test that shows that the RTP rate is marginally cost effective based on the rate impact measure(RIM),

with a benefit-cost ratio of 1.02. The test assumed that there would be eight customers under the RTP rate and that the average per customer peak demand reduction would be 2,000 kW at the meter. In addition, the test assumed an increase in energy consumption of approximately 3.3 million kwh per customer per year.

While 22 customers took service under the pilot program, Gulf indicated in response to staff data requests that there are currently only six customers remaining on the RTP rate. Gulf indicated that the remaining customers were industrial in nature, and were those best able to shift their energy usage to lower priced hours, either through self-generation, or through shift or production changes. The estimates of peak load reduction used by Gulf in the cost-effectiveness test were based on the assumption that the eight customers were industrial in nature.

Gulf indicated that many customers who left the program in 1999 were hesitant, following the high RTP prices encountered in 1998, to continue under the rate. These customers tended to be commercial in nature, were highly weather-sensitive in their demand for electricity, and had limited ability to shift their loads in response to the RTP price signals.

PROPOSED PERMANENT RTP RATE SCHEDULE

The proposed permanent RTP rate schedule is identical in most respects to the rate offered under the pilot program. The principal differences between the two offerings are discussed below.

Gulf's proposed permanent RTP rate schedule differs from the pilot RTP program with respect to its eligibility criteria. The pilot program allowed new and existing LP, LPT, PX, PXT, and SBS customers whose monthly maximum demands exceed 2,000 kW to take service under the rate. The new offering only requires that customers' annual demands exceed 2,000 kW to take service under the rate. In addition, the new rate limits the availability of the RTP rate to existing SBS (Standby and Supplemental service) customers whose supplemental service requirements are at least 50% of their contracted standby service. Thus new SBS customers, and those existing SBS customers who take only standby service would not be eligible for the RTP rate. Gulf indicates that based on the criteria contained in the permanent offering, 31 customers qualified for the rate as of April 30, 1999.

The permanent RTP rate incorporates a Reactive Demand Charge provision identical to the provisions in Gulf's existing LP, LPT, PX, PXT and SBS rate schedules. It also requires new customers to take service for an initial term of five years, with an annual renewal by March 1 of each year thereafter. Gulf also intends to exempt those customers who participated in the pilot program from the five-year initial term requirement.

The method used to set the permanent hourly RTP prices is identical to the method outlined above and in attachment 1, with one exception. The pilot RTP rate indicates that the "M" multiplier will be modified annually, using updated year-ahead lambda forecasts. Under the permanent rate, the "M" multiplier would be "reviewed periodically and adjusted as needed."

When actual system lambdas are higher than the forecasted values used to develop the multipliers, the resulting RTP prices are higher than expected. Conversely, if the actual lambdas are lower than forecasted, the resulting RTP prices are lower than expected. In response to staff discovery, Gulf indicated that the "M" multiplier was modified several times during the pilot program, at intervals of less than one year. The initial multipliers were in effect for less than three months. During the remaining period of the program, the multipliers were in effect for periods ranging from one to 13 months. The need to adjust the multipliers more frequently than originally intended is due to the difficulty in forecasting the Southern Company system lambda for a year in advance, particularly for the peak period. The volatility of lambda resulted in peak period "M" multipliers that ranged from a high of 4.414 at the outset of the program to a low of 1.500 for the period June 23, 1998 through May 31, 1999.

CONCLUSION

Staff recommends that Gulf's proposed RTP permanent rate schedule be approved. The RTP rate is an innovative offering which sends customers price signals that attempt to reflect hourly variations in the cost of energy. Gulf's final report demonstrates that the RTP prices have resulted in peak demand reductions. While the program does result in a substantial decrease in base rate revenues when compared with Gulf's existing embedded cost rates, staff recognizes that the RTP was not designed to be revenue neutral with respect to existing rates. This means that customers under the RTP rate may pay less than they would under standard rates, even without any change in their patterns of energy usage.

Staff also recognizes that in the absence of a rate proceeding, Gulf's stockholders absorb the shortfall in revenues as compared to standard embedded cost rates.

As Gulf's final report analysis has shown, there were many customers who participated in the pilot program who currently cannot adjust their consumption patterns in response to the RTP price signals. It is Gulf's contention that over time, some of these customers may adopt measures that will increase their ability to shift their usage.

Although the RTP program analysis has demonstrated that it does result in peak demand reductions, it is not clear that such reductions are cost-effective for the general body of Gulf's ratepayers. The RIM analysis submitted for the current conservation goals docket shows RTP to be only marginally cost effective, and the analysis assumes the participation of only those customers with the greatest ability to shift their usage to lower-cost time periods. The addition of customers who lack the ability to shift their usage may make the program less cost-effective. By recommending approval of the permanent RTP rate schedule, staff is not asserting that the rate has been demonstrated to be a cost-effective conservation program whose costs are appropriate for recovery through the Energy Conservation Cost Recovery Clause.

Due to the dynamic nature of the RTP rate schedule, and the extent to which the revenues collected under the rate are dependent on changes to the "M" multipliers, staff believes that it is appropriate to require Gulf to provide certain information to the staff on an ongoing basis.

On a quarterly basis, Gulf should file with the Commission a report showing any changes made to the "M" multipliers made during the period, when the changes went into effect, and a brief explanation as to why the multipliers required updating. In addition, if Gulf makes changes to the methodology used to determine the RTP prices other than updating of the "M" multipliers to reflect new lambda forecasts, it should file for approval of such changes with the Commission.

Since the RTP is a significant departure from embedded cost ratemaking, staff also believes Gulf should include in the quarterly report the total revenues collected and total sales in kilowatt hours separately shown for the RTP, PXT, and LPT rate classes. This will allow the Commission to monitor the extent to which RTP rates depart from standard embedded cost rates.

ISSUE 2: What is the appropriate effective date for the proposed tariffs?

RECOMMENDATION: August 17, 1999. [WHEELER]

STAFF ANALYSIS: If the Commission approves the proposed tariffs at its August 17, 1999 agenda conference, they should become effective on that date.

ISSUE 3: Should this docket be closed?

RECOMMENDATION: Yes, if no protest is filed within 21 days of the issuance of the order. [COLLINS]

STAFF ANALYSIS: If a protest is filed within 21 days of the Commission order approving this tariff, the tariff should remain in effect pending resolution of the protest, with any charges held subject to refund pending resolution of the protest. If no protest is filed, this docket shall be closed upon the issuance of a Consummating Order.

The hourly RTP energy prices provided to customers consist of four components:

RTP Hourly Price = (Lambda X "M") + Adjustment Factors + "D"

Lambda - This represents the Southern Company system lambda projected a day ahead for each hour of the day. Lambda represents the incremental cost to serve the next kilowatt hour of load on the Southern system.

"M" - This component is a multiplier applied to the forecasted lambda portion of the price. It is intended to adjust the lambda forecast to reflect the embedded generation and transmission costs of the RTP customers.

Three different "M" multipliers are applicable during designated hours of the year. The peak multiplier is applicable during the hours between noon and 6:00 p.m. for the months of June through September, and represents about 6% of the total hours in the year. About 16% of the total hours in the year are designated as intermediate hours, and the remaining 78% of the hours are designated as off-peak.

An embedded cost production and transmission revenue requirement was developed based on a 1994 cost-of-service study for the classes that are eligible for the RTP rate (i.e., the LP, LPT, PX, and PXT rates). This revenue requirement was allocated to the three time periods using an equivalent peaker methodology. This revenue requirement was then divided by the forecasted kwh usage for these classes during the period. Finally, this resulting cents per kwh figure was multiplied by the average system lambda for the period based on a year-ahead forecast.

In its petition for approval of the pilot RTP program, Gulf said that the "M" multipliers would most likely be modified annually to reflect updated year-ahead forecasts of Lambda.

Adjustment Factors - This component consists of the customers' otherwise applicable adjustment clause factors, including the fuel, capacity, environmental, and conservation cost recovery clauses.

"D" - This factor is a constant amount equal to .25 cents per kwh, and represents the embedded distribution costs of the customer classes that are eligible for the RTP rate based on a 1994 cost-of-service study.