**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:** April 26, 2007

**TO:** Commission Clerk (Cole)

**FROM:** Division of Economic Regulation (Lewis, Ballinger)
Office of the General Counsel (Fleming)

**RE:** Docket No. 070119-EG – Petition for approval of modifications to certain demand-side management programs by Gulf Power Company.

**AGENDA:** 05/08/07 – Regular Agenda – Proposed Agency Action – Interested Persons May Participate

**COMMISSIONERS ASSIGNED:** All Commissioners

**PREHEARING OFFICER:** Administrative

**CRITICAL DATES:** None

**SPECIAL INSTRUCTIONS:** None

**FILE NAME AND LOCATION:** S:\PSC\ECR\WP\070119.RCM.DOC

## Case Background

As part of its Commission-approved Demand-Side Management (DSM) Plan, Gulf Power Company (Gulf Power) offers a Residential and Commercial Geothermal Heat Pump (GHP) Program. These programs are intended to reduce the demand and energy requirements of customers by providing incentives to customers who choose more energy efficient geothermal heat pump systems over air source heat pumps.

Geothermal heat pumps use the temperature of the earth as the heat exchange medium instead of air. The earth remains at a relatively constant temperature and so is both warmer in winter and cooler in summer than air temperatures. GHP technology takes advantage of this by exchanging heat with the earth through a series of pipes buried underground.

Gulf Power's existing Residential GHP Program provides a $150 per ton incentive for the installation of qualifying geothermal heating, ventilation and air-conditioning (HVAC) units system in a single or multi-family dwelling. Single-family systems above 10 tons and multi-family systems above 50 tons are subject to incentives based on a cost-effectiveness analysis. Gulf Power's existing Commercial GHP Program provides participating customers with a $150 per ton incentive for commercial full closed loop GHP projects, or a $75 per ton incentive for hybrid closed loop projects. In a hybrid closed loop system, loops are attached to a cooling tower as well as to underground pipes and the cooling tower is used to supplement summer peak load.

In its petition, Gulf Power proposes to modify both the Residential and Commercial GHP programs. According to Gulf Power, these programs have experienced moderate success but the Company desires to increase customer participation to achieve the Commission-approved DSM goals. Therefore, in an effort to grow participation, the Company proposes an increase to the incentives offered by these programs.

This recommendation addresses Gulf Power's petition requesting that the Commission (1) approve the proposed modifications to its DSM programs, (2) authorize recovery through the Energy Conservation Cost Recovery (ECCR) clause of reasonable and prudent expenditures associated with the implementation of the modified programs, and (3) grant such other relief as may be appropriate.

The Commission has jurisdiction over this matter pursuant to Sections 366.81 and 366.82, Florida Statutes.

## Discussion of Issues

**Issue 1**: Should the Commission approve Gulf Power's petition to modify its Residential and Commercial Geothermal Heat Pump programs, which includes a request to recover reasonable and prudent costs for these programs through the energy conservation cost recovery (ECCR) clause?

**Recommendation**: Yes. However, because in some cases participants may have to wait as long as 19 years to realize a savings on their investment, the payback period must be disclosed to potential participants so they can make an informed decision. The proposed modifications pass all of the cost-effectiveness tests with the exception of the Rate Impact Measure (RIM) test under one assumption. Assuming a GHP displaces an air source heat pump results in a RIM value of less than one, and therefore would not be considered cost effective to Gulf's general body of ratepayers. However, the RIM test is passed when it is assumed that a GHP displaces natural gas heating. Ultimately, participation in a program is the customer's choice; however, Gulf should not use the GHP program solely to displace end-use natural gas appliances. Gulf should be allowed to recover all reasonable and prudent costs through the ECCR clause for implementing these programs. (Lewis, Ballinger)

**Staff Analysis**: The Residential and Commercial GHP program are part of a portfolio of individual Demand-Side Management (DSM) programs approved by the Commission for meeting Gulf Power's conservation goals in Order No. PSC-05-0273-PAA-EG, issued April 6, 2005 in Docket No. 040032-EG. Though these two programs have experienced moderate success in the past, Gulf Power desires to increase customer participation to continue achieving the approved DSM goals.

Gulf Power proposes to modify the Residential and Commercial GHP Programs by increasing the customer incentives as shown below.

**Gulf Power GHP Program Cash Incentives**

| | Approved Incentives | Proposed Incentives |
|---|---|---|
| Residential Full Closed Loop | $150/ton | $400/ton |
| Commercial Full Closed Loop | $150/ton | $400/ton |
| Commercial Hybrid Closed Loop | $75/ton | $200/ton |

Gulf Power believes that the proposed program modifications will help further the objectives of the Florida Energy Efficiency Conservation Act (FEECA) by cost-effectively reducing the growth rate of weather sensitive peak demand, reducing and controlling the growth rate of energy consumption, increasing the conservation of expensive resources and increasing the efficiency of the electrical system.

When the Commission evaluates conservation programs, it considers the three criteria established in Order No. 22176, issued November 14, 1989, in Docket No. 890737-PU:

(1) Whether the program advances the policy objectives of Rule 25-17.001, Florida Administrative Code, and Section 366.80-85, Florida Statutes, also known as the "Florida Energy Efficiency and Conservation Act" (FEECA);

(2) Whether the program is directly monitorable and yields measurable results; and

(3) Whether the program is cost effective.

The proposed modifications meet criterion (1). The growth rate of weather sensitive summer peak demand on Gulf Power's electric system should be reduced because of the increased energy efficiency of geothermal units over air source units. Increasing the usage of GHP units will also result in deferring the need for constructing additional generating capacity. Each of these is a stated goal of Rule 25-17.001, F.A.C., and is supported by the cost-effectiveness analysis supplied by Gulf Power.

The proposed modifications meet criterion (2) because Gulf will track all GHP installations through its account reporting system and will validate engineering analysis of energy and demand savings through billing data. Customer interviews and surveys may be used to assess levels of satisfaction and/or reasons for non-participation. Finally, Gulf will report the results of this DSM program as part of its annual FEECA report to the Commission.

Whether the program is cost effective (criterion 3) is determined in accordance with Rule 25-17.008, F.A.C., which establishes the format that electric utilities shall use for reporting cost effectiveness data and specifies the three cost-effectiveness tests that are required for conservation programs: the Total Resource Test, the Participants Test, and the Rate Impact Test. In support of its petition, Gulf Power provided a cost-effectiveness analysis of each of the proposed DSM programs using the Commission-approved methodology.

Based on information provided by Gulf Power, staff determined that the Commercial GHP program passes the RIM test with a value of 1.04 and passes the Participants' test with a value of 1.53. Gulf's analysis shows that it takes approximately 13 years for a participant in the Commercial GHP program to realize any net savings. Such a long payback period may dissuade customers from participating in the program; therefore, Gulf's proposed modifications may not achieve the desired results. Staff believes customers should be informed of the payback period involved so that they can make an informed decision.

Based on information provided by Gulf Power, staff determined that the Residential GHP program passes the RIM test with a value of 1.06 and passes the Participants' test with a value of 1.22. A key factor to look at in a Participant's test is the payback period. Gulf's analysis shows that it takes approximately 18 years for a participant in the Residential GHP program to realize any net savings. The RIM and Participant values are also premised on a customer converting from natural gas heat to a geothermal heat pump. Staff requested Gulf perform cost

effectiveness tests based on a conversion from an electric air source heat pump to a GHP. The result was a RIM value of 0.93 and slightly longer payback period of approximately 19 years. The table below illustrates the results of the cost-effectiveness tests and the payback period for the Residential GHP program under the two assumptions.

**Cost Effectiveness Analysis for Residential GHP Program**

| Assumptions | Rate Impact Measure | Total Resource Cost | Participant Test | Customer Payback Period |
|---|---|---|---|---|
| Displaces natural gas heating. Avoided unit is 2014 combined cycle. | 1.06 | 1.33 | 1.22 | 18 years |
| Displaces air source heat pump. Avoided unit is 2014 combined cycle. | 0.93 | 1.18 | 1.22 | 19 years |

A RIM value of less than one indicates the program is not cost effective to Gulf's general body of ratepayers. Ultimately, participation in the program is the customer's choice. However, Gulf should not use the Residential GHP program solely to displace end-use natural gas appliances.

Conclusion

Gulf Power's proposed modifications to its Residential and Commercial Geothermal Heat Pump programs meet the Florida Energy Efficiency and Conservation Act policy objectives and the cost-effectiveness tests established by Commission in Rule 25-17.008, F.A.C. As discussed previously, it will take customers participating in the residential program 18 years to receive a net benefit and 13 years for customers participating in the commercial program to receive a net benefit. Because of the length of time it will take participants to achieve payback, staff recommends that the Commission condition its approval on Gulf disclosing the payback period to potential participants in both programs. Gulf should be allowed to recover all reasonable and prudent costs through the ECCR clause for implementing these programs.

**Issue 2**: Should this docket be closed?

**Recommendation**: Yes. If Issue 1 is approved, the program modifications should become effective June 22, 2007. If a protest is filed within 21 days of the issuance of the proposed agency action order, any modifications should not be implemented until after the resolution of the protest. If no timely protest is filed, the docket should be closed upon the issuance of a consummating order. (Fleming)

**Staff Analysis**: If Issue 1 is approved, the program modifications should become effective June 22, 2007. If a protest is filed within 21 days of the issuance of the proposed agency action order, any modifications should not be implemented until after the resolution of the protest. If no timely protest is filed, the docket should be closed upon the issuance of a consummating order.