

State of Florida



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Public Service Commission

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DATE: October 30, 2008

TO: Office of Commission Clerk (Cole)

FROM: Office of Strategic Analysis and Governmental Affairs (Garl, Ellis) Office of the General Counsel (Fleming)

Handwritten signatures and initials: AD, MA, RB, KFB, ASB

RE: Docket No. 080395-EG – Petition for approval of modifications to demand-side management plan by Gulf Power Company.

AGENDA: 11/13/08 – 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\SGA\WP\080395.RCM.DOC

Case Background

Gulf Power Company's (Gulf or company) current Commission-approved demand-side management (DSM) Plan consists of a portfolio of individual DSM programs, which includes six residential programs, five commercial/industrial programs, one research and development program, and a renewable energy program. In its current petition, Gulf proposes the addition of two new programs: (1) the Solar Thermal Water Heating Pilot Program, and (2) the Energy Education Program.

The Solar Thermal Water Heating Pilot Program is proposed as a three-year pilot program. Gulf states that the program is designed to gauge customer interest in, and acceptance of, the technology. In addition, the pilot program is designed to determine what economic

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incentives may be most effective to increase customer willingness to install the solar thermal water heating system. The systems would reduce overall annual water heating energy demand by substituting solar thermal water heating for a portion of natural gas or electric water heating. Participants would be required to have Gulf perform a home energy audit prior to installing the solar thermal water heating system.

The Energy Education Program is proposed as a permanent program. The program's intent is to raise awareness of energy efficiency and conservation and to increase participation in all of Gulf's existing DSM programs. The program consists of four components: (a) Consumer Awareness, (b) School-based Education, (c) Community-based Education, and (d) Contractor Education. A comprehensive, theme-based advertising campaign will be the major element of the program. Assistance will be provided to middle and high school science teachers for instruction on energy conservation. In addition, presentations will be offered to civic groups and contractors to show how they can contribute toward energy savings.

This recommendation addresses Gulf's petition requesting that the Commission (1) approve the proposed additions to its DSM programs, and (2) authorize recovery of reasonable and prudent expenditures associated with the implementation of the added programs through the Energy Conservation Cost Recovery (ECCR) clause.

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

Discussion of Issues

Issue 1: Should the Commission approve Gulf's petition to add the proposed Solar Thermal Water Heating Pilot Program to its DSM Plan?

Recommendation: Yes. However, the pilot program should only be approved through December 31, 2009. The Commission is scheduled to establish new conservation goals, based on new statutory direction, by January 1, 2010. Therefore, Gulf's Solar Thermal Water Heating Pilot Program should be reevaluated when new conservation goals go into effect on January 1, 2010. Initial cost-effectiveness test results provide little assurance that the program will be cost-effective. Expenditures for the pilot program, reduced to one year, should be capped at \$517,000, the first year of Gulf's three-year estimate. Gulf will use the data collected to perform a cost-effectiveness analysis and the Commission can revisit continuation of this program in 2010 when Gulf files its DSM program to meet its new goals. Upon a showing by Gulf that expenses for the Solar Thermal Water Heating Pilot Program were reasonable and prudently incurred, the company should be permitted to recover those costs through the ECCR clause. (Garl, Ellis)

Staff Analysis: Gulf proposes instituting a Solar Thermal Water Heating Pilot Program as a three-year pilot program throughout its service territory. Gulf wishes to gauge customer interest in, and acceptance of, the solar water heating technology. Gulf also hopes to determine what economic incentives may be most effective to increase public willingness to install the technology in residential homes. The company estimates attracting 75 participants per year. Gulf's petition also proposes demonstrating solar thermal water heating in 88 low-income multi-family applications at no cost to those families.

The solar thermal water heating systems to be installed offer customers an opportunity to reduce their overall water heating energy needs by using renewable solar energy to meet a portion of their hot water needs otherwise provided by natural gas or electric resistance heating. The system operates in conjunction with a back-up natural gas or electric resistance source of hot water to ensure an uninterrupted supply of hot water.

Customers desiring to participate in the pilot program will be required to have a complimentary home energy audit, which includes comprehensive energy savings tips, a voucher for compact fluorescent lightbulbs, and guidelines for successful installation of the solar thermal water heating system. Upon installation of a qualifying solar water heating system and verification by Gulf field personnel, the customer will receive a \$1,000 rebate from Gulf. In addition to the rebate, Gulf's petition claims participating customers may be eligible for an additional \$500 rebate from the State of Florida,¹ and a 30 percent federal tax credit, up to \$2,000.² Eligibility for the Florida rebate appears probable, and the Federal tax credit was recently extended by Congress to 2017.

¹ Section 377.806, F.S., specifies the qualifications for a \$500 incentive payment from the State for residential installation of a solar thermal water heating system.

² Federal tax credit criteria are found at 26 U.S.C. §25D.

Initial Considerations

Gulf's petition proposing adoption of a Solar Thermal Water Heating Pilot Program overlaps the current conservation goal-setting timeline. In its 2008 session, the State Legislature amended Section 366.81, F.S., which now requires the Commission to ". . . evaluate the full technical potential of all available demand-side and supply-side conservation and efficiency measures, including demand-side renewable energy systems" when the Commission establishes DSM goals. The amended statute defines demand-side renewable energy systems as including thermal energy, such as solar thermal water heating systems. The statute further directs the Commission to consider costs and benefits to both participants and the general body of ratepayers, and the need for incentives to promote efficiency programs. Completing the required evaluations will identify those programs and measures worthy of adoption including solar thermal measures. New DSM goals will become effective in 2010. Staff believes it would be better, therefore, to approve Gulf's proposed pilot program to run until the end of 2009 pending the new goal setting process.

Demand and Energy Savings

Gulf's proposed Solar Thermal Water Heating Pilot Program promotes the use of solar energy to supply a portion of residential hot water needs, thereby conserving electrical power generation resources. The company estimates the proposed program will provide a 0.25 kW summer demand reduction and a 2,600 kWh reduction of annual energy generation, per installation.

Cost-effectiveness Analysis

Determination of cost-effectiveness for DSM programs is required by Rule 25-17.008, Florida Administrative Code (F.A.C.). Three tests are to be used: Rate Impact Measure (RIM), Participants, and Total Resource Cost (TRC). Each test is designed so that when the resulting benefit-cost ratio is greater than 1.0, the test is considered passing and indicates cost-effectiveness. The Participants Test measures the impact of the program on participating customers. This test views incentives and bill reductions as benefits while participant expenditures are a program cost. The TRC test provides somewhat of a societal view and measures the net costs based on the total costs of the program, including both the participants' and the utility's costs. The TRC test differs from RIM by eliminating incentives and reduced utility revenue as costs but adds participant expenditures as a cost. The RIM test is a measure of the impact on non-participating customer rates caused by the program. This test considers avoided supply (generation) costs as program benefits and views program costs, incentives, and reduced utility revenue as program costs.³

Legislative changes in 2008 added greater emphasis to costs and benefits to program participants, the general body of ratepayers as a whole, and the need for incentives to promote renewable energy systems. At the same time, consideration of utilities' costs, such as lost revenues, were deemphasized. The amended statute also emphasizes promotion of renewable

³ See "Florida Public Service Commission Cost Effectiveness Manual For Demand Side Management Programs and Self-Service Wheeling Proposals" for a more in-depth discussion of the cost-effectiveness tests.

energy sources and defines demand-side renewable energy systems as including thermal energy, such as solar thermal water heating systems.⁴

Gulf's proposed pilot program does not appear to be cost-effective since it fails two of the three tests. The Participants Test produced a benefit to cost ratio of 1.27, thereby passing the test. The Total Resource Cost (TRC) Test produced a ratio of 0.63, and the Rate Impact Measure (RIM) Test produced a benefit to cost ratio of 0.51, both failing the test. These results suggest that the general body of ratepayers would be subsidizing the program to the benefit of the participants.

Staff, therefore, studied the data Gulf presented to determine what might be required to achieve benefit-cost ratios of 1.0 or above for all tests, the threshold indicating a DSM program will be cost-effective. Staff's analysis demonstrated there was little potential for passing all three cost-effectiveness tests. If Gulf were to reduce the incentive to the point that the systems were being fully funded by the participant, the RIM test would improve but only to a value of 0.58. Such a scenario would produce a Participants test ratio of 0.78, indicating no benefit for participants. The TRC test would be unaffected and remain at 0.63.

Another RIM scenario considered was deleting the cost of lost utility revenue. Deleting lost revenues in the RIM test provided a benefit-cost ratio of 1.12, passing the test. The TRC test, however, would still fail since neither incentives paid nor lost revenue are considered in this test.

Historically, the Commission has not required cost-effectiveness analysis of pilot programs because much of the data needed for testing is not yet available. Part of the purpose of the pilot period is to collect actual data with which to conduct the analysis. Since Gulf's petition provided estimates of most data necessary, staff requested that Gulf perform the cost-effectiveness tests on the proposed Solar Thermal Water Heating Pilot Program.

Gulf will use the data collected to perform a cost-effectiveness analysis and the Commission can revisit continuation of this program in 2010 when Gulf files its DSM program to meet its new goals. In addition, solar thermal is one technology being evaluated in the FEECA goal-setting Technical Potential Study by KEMA/ITRON. Their final report will provide another source of information for Gulf to determine the long-term viability of this program.

Monitoring and Evaluation

Gulf Power proposes to conduct annual surveys of Solar Thermal Water Heating Pilot Program participants to determine:

1. Level of satisfaction with the technology
2. Perceived value of the incentive
3. Perceived environmental value
4. Perceived economic value

⁴ Section 366.82, F.S.

Gulf also plans to randomly survey participants and non-participants to determine the value of alternate incentive levels and promotional practices. Gulf will compare the participation penetration with industry data for solar thermal water heating programs to assess the effectiveness of Gulf's program. Gulf will validate estimates of demand and energy reductions from the pilot program using billing data and metering of customer equipment.

Impact to Ratepayers

Adoption of the proposed Solar Thermal Water Heating Pilot Program will impact both the general body of Gulf's ratepayers and those who participate in the program. Gulf estimates that the 3-year pilot program will cost \$793,000. Gulf would submit the cost for recovery under the Energy Conservation Cost Recovery (ECCR) clause. Gulf estimates the cost categories as follows:

	<u>Year 1</u>	<u>Year 2&3</u>
Brochures and promotional materials	\$ 7,000	\$ 6,000
Pre- and Post-Pilot surveys	\$ 10,000	\$ 20,000
Incentives (75 installations/yr. @ \$1,000 each)	\$ 75,000	\$150,000
Low income project (88 installations)	\$375,000	\$ 0
Advertising (\$50,000/yr.)	<u>\$ 50,000</u>	<u>\$100,000</u>
Total program cost for 3 years	<u>\$517,000</u>	<u>\$276,000</u>
Cost per customer (374,879 customers)	\$1.38	\$0.74

Customers participating in the Solar Thermal Water Heating Pilot Program will pay an estimated \$2,800 net cost, as follows:

System cost and installation	\$5,500
Less incentive from Gulf Power	(\$1,000)
Less State of Florida rebate	(\$ 500)
Less Federal Tax Credit (30% of net cost)	<u>(\$1,200)</u>
Net customer cost	<u>\$2,800</u>

Conclusion

The Solar Thermal Water Heating Pilot Program may provide information on what will be necessary, to make the program a viable energy saving program that is cost-effective. Staff believes that a one-year pilot program is an acceptable compromise that promotes use of renewable solar energy while not burdening Gulf's general body of ratepayers with too large a subsidy for a potentially non-cost-effective program. Staff, therefore, recommends (1) Gulf's proposed Solar Thermal Water Heating Pilot Program be approved for a one year trial period, (2) expenditures for the pilot program be capped at \$517,000, and (3) Gulf should use the data collected to perform a cost-effectiveness analysis using actual data so the Commission can revisit continuation of this program in 2010 when Gulf files its DSM program to meet its new goals. Additionally, upon a showing by Gulf that expenses for the Solar Thermal Water Heating Pilot Program are reasonable and prudently incurred, the company should be permitted to recover those costs, pursuant to Section 366.82, F.S., through the ECCR clause.

Issue 2: Should the Commission approve Gulf's petition to add the proposed Energy Education Program to its DSM Plan?

Recommendation: Gulf should be allowed to initiate the Energy Education Program as a pilot program for one year, with expenditures capped at \$1,010,000. Gulf should also ensure that advertising is not image enhancing and be fuel neutral. Gulf can revisit the continuation of this program after new DSM goals take effect in 2010. Furthermore, upon a showing by Gulf that expenses for the Energy Education Program are reasonable and prudently incurred, the company should be permitted to recover those costs, through the ECCR clause. (Garl, Ellis)

Staff Analysis: Gulf proposes initiating an Energy Education Program as a new permanent addition to its demand-side management plan. The new program is intended to raise awareness of the importance of energy efficiency and conservation, and to increase participation in all of Gulf's energy efficiency and conservation programs. The program will consist of multiple broad-based education and awareness campaigns that will address conservation principles not traditionally promoted through existing programs, such as renewable energy alternatives. The program plan to meet these objectives is through its four components: (1) Consumer Awareness; (2) School-based Education; (3) Community-based Education; and (4) Contractor Education.

The Consumer Awareness Campaign is to be a comprehensive advertising effort to encourage consumer participation in energy efficiency and conservation. The primary goal is to increase consumer awareness of the benefits and ease of personal energy conservation at home or work as a tool for improving the environment while reducing and controlling the growth rate of energy consumption and conserving expensive resources. The campaign will be in addition to existing Gulf advertising for conservation programs, but will associate all the existing programs and services with a common over-arching message. Advertising will be presented in traditional print and broadcast media, billboards, internet, direct mailing, and point of sale displays. This component comprises 83 percent of the total budgeted program costs.

The School-based Education component, using seven percent of the program budget, is a training program for middle and high school science teachers, as well as support materials to augment the teachers' energy-related lesson plans. Gulf plans to partner with a local college to prepare and deliver an instructional course for these teachers. The resulting course will allow participating teachers to earn continuing education credit while providing training relative to energy conservation, energy efficiency, electricity generation, environmental impacts of generation and renewable energy. Gulf will further support eighth grade science teachers by providing materials such as hands-on experiment kits or labs. The type of instruction and support materials will be customized to specific school or district needs in carrying out the Florida Department of Education's Sunshine State Standards for Science. The classroom experience will include award of a compact fluorescent lightbulb for each completed home energy survey. The completed surveys will be processed to provide a custom Home Energy Profile for each participant, including recommendations for improving the energy efficiency of home and household energy practices.

The Community-based Education component involves making presentations to civic groups, clubs, neighborhood associations, and other public organizations. Functions such as home shows, home building seminars, home expos and demonstration sites will be used to

explain Gulf's energy efficiency and conservation programs. Four percent of the program budget has been allocated for this component.

The fourth component, Contractor Education, will consume six percent of the program budget. This component will consist of building science training and concepts which encourage construction of homes and buildings that are more energy efficient, durable, comfortable, and safe. This component will provide participants with the training, tools, and consultation services necessary to meet the strict building performance evaluations and verification required by a variety of federal energy efficiency certification programs.

Staff observed that Gulf's request for approval of an Energy Education Program is somewhat untimely. The 2008 Legislative Session changed the character of demand-side management programs by adding greater emphasis to promotion of energy conservation and efficiency and use of renewables. The amended Section 366.81, F.S., now requires the Commission to ". . . evaluate the full technical potential of all available demand-side and supply-side conservation and efficiency measures, including demand-side renewable energy systems" when the Commission establishes DSM goals. The statute further directs the Commission to consider the need for incentives to promote efficiency programs. Completing the required evaluations will identify those programs and measures worthy of adoption; retaining pilot programs based on these old goals, therefore, would be counterproductive. New DSM goals will become effective in 2010. Staff recommends it would be inadvisable, therefore, to approve a pilot program to run past the end of 2009.

In reviewing the proposed program addition, staff considered compliance with the Florida Energy Efficiency and Conservation Act (FEECA) policy objectives, the cost-effectiveness analysis established by the Commission in Rule 25-17.008, F.A.C., the ability to monitor and evaluate the program, and the impact on the general body of ratepayers.

FEECA Compliance

Gulf's proposed Energy Education Program supports the intent of FEECA by educating Gulf's customers about methods to reduce the growth rate of electric consumption and weather-sensitive peak demand.

Cost-effectiveness Analysis

Since the proposed Energy Education Program is an education program without measureable demand or energy savings, a traditional cost-effectiveness analysis may not be applicable for this program. This view was supported by the Florida Energy Commission (FEC) in its 2007 Report to the Legislature. The FEC report, on page 114, said, ". . . because the immediate results of such energy education and consumer awareness efforts may be difficult to measure, the costs should be monitored by the FPSC, but not subjected to traditional energy conservation program cost-effectiveness tests." Approval of the proposed program as a one year pilot would follow the FEC's suggestion. Staff's initial reservation about cost-effectiveness, due to the large percentage budgeted for advertising, is discussed below under the Impact to Ratepayers.

Monitoring and Evaluation

Gulf will conduct annual surveys of customers to determine the effectiveness of the Energy Education Program to increase awareness of energy efficiency and conservation. The company also plans to monitor participation in other energy efficiency programs and activities. The results will be compared to a baseline survey and historical program participation data to assess the impact of the Energy Education Program.

Impact to Ratepayers

Gulf estimates that the proposed Energy Education Program will cost \$1,010,000 for the first year and \$960,000 for each subsequent year. Expenditures by category are estimated as follows:

<u>Category</u>	<u>1st Yr.</u>	<u>Subsequent Yrs.</u>
1. Program manager	\$ 75,000	\$ 75,000
2. Advertising	\$ 800,000	\$800,000
3. Teacher training	\$ 30,000	\$ 30,000
4. School support	\$ 10,000	\$ 10,000
5. Contractor training	\$ 20,000	\$ 20,000
6. Brochures and promotional	\$ 60,000	\$ 10,000
7. Annual survey	\$ 15,000	\$ 15,000
Total	<u>\$1,010,000</u>	<u>\$960,000</u>
Cost per customer (374,879 customers)	\$2.69	\$2.56

Staff believes the estimated expenditures appear reasonable; however, the \$800,000 for advertising raised some concern. Gulf's cost recovery filing in 2008 showed advertising for all demand-side management programs totaled \$502,148, and over 95 percent of that total was spent on 2 programs: Residential Energy Survey and GoodCents Select. The Energy Education Program advertising budget would far surpass advertising expenditures for all other programs combined. At over 80 percent of the budget for the Energy Education Program, the advertising campaign merited further scrutiny.

Comparing the advertising expenditures for other Investor Owned Utilities' (IOU) DSM programs, Gulf was third, behind Progress Energy Florida, Inc. (Progress) and Florida Public Utilities Company (FPUC), in percentage of DSM expenses that were used for advertising, as reported in 2008 ECCR filings. After adding the proposed \$800,000 of advertising to Gulf's filing, it would remain in third position. The same is true in comparing dollars spent for advertising; Gulf would remain in third position, after Florida Power & Light Company (FPL) and Progress, before and after adding the proposed \$800,000 for the Energy Education Program. These comparisons are shown in the table below:

Company Name	Total DSM Expense	Advertising Expense	% of DSM
FPL	\$ 166,018,072	\$7,166,237	4.32%
PEF	\$ 67,109,755	\$8,003,338	11.93%
TECO	\$ 13,800,110	\$ 421,760	3.06%
FPUC	\$ 515,022	\$ 213,513	41.46%
GULF w/o new program	\$ 9,811,389	\$ 481,157	4.90%
GULF w/new program	\$ 10,821,389	\$1,281,157	11.84%

Gulf provided staff with a preliminary estimate of how the advertising budget would be used in promoting consumer awareness of energy efficiency and conservation.

Media Channel	No. of Ads	Occurrences	Cost
TV/Cable (30 sec)	1	750/600	\$300,000
Radio (60 sec)	2	4,000	\$160,000
Outdoor (billboard)	2	200	\$150,000
Print (114 pages)	5	150	\$140,000
Online	3	1.3 million	\$ 50,000
			<u>\$800,000</u>

Finally, staff noted that Gulf has met the Commission-assigned DSM goals for residential energy savings only once since 2000. This suggests that Gulf should try something new and/or different in an effort to meet their savings goals. Staff concluded that perhaps an advertising “blitz” promoting energy efficiency and conservation, at the same time advocating Gulf’s programs that reduce energy consumption, is just what may be needed. Staff, therefore, is supportive of the large advertising budget in the proposed Energy Education Program, at least initially. One must ask, however, if the same advertising budget should continue year-to-year after a year of substantial advertising has made consumers “aware.” Staff believes a one-year review of collected impact data is more appropriate than permitting the program to continue indefinitely.

Conclusion

Staff recommends that the Commission approve Gulf’s request to establish its proposed Energy Education Program, but only as a one-year pilot program. Gulf should also ensure that advertising is not image enhancing and be fuel neutral, as required by Rule 25-17.015(5), F.A.C. Gulf can revisit the continuation of this program after new DSM goals take effect in 2010. Furthermore, upon a showing by Gulf that expenses for the Energy Education Program are reasonable and prudently incurred, the company should be permitted to recover those costs, through the ECCR clause.

Issue 3: Should this docket be closed?

Recommendation: Yes. If Issues 1 and 2 are approved, the program modifications should become effective December 29, 2008. If a protest is filed within 21 days of the issuance of the proposed agency action order, the modifications should not be implemented until after 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 Issues 1 and 2 are approved, the program modifications should become effective December 29, 2008. If a protest is filed within 21 days of the issuance of the proposed agency action order, the modifications should not be implemented until after resolution of the protest. If no timely protest is filed, the docket should be closed upon the issuance of a consummating order.