



Public Service Commission

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RECORDS AND REPORTING

DATE: JANUARY 6, 2000

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

FROM: DIVISION OF ELECTRIC AND GAS (HAFE HARLOW, S. BROWN, *PLT*)
 MAKIN *WMA*
 DIVISION OF LEGAL SERVICES (ELIAS) *JTB*
BB
RVE

RE: DOCKET NO. 981591-EG - PETITION FOR AUTHORITY TO IMPLEMENT GOOD CENTS CONVERSION PROGRAM BY GULF POWER COMPANY.

AGENDA: 1/18/2000 - REGULAR AGENDA - POST HEARING DECISION - PARTICIPATION IS LIMITED TO COMMISSIONERS AND STAFF

CRITICAL DATES: NONE

SPECIAL INSTRUCTIONS: PANEL ITEM - COMMISSIONERS DEASON, CLARK, AND JACOBS

FILE NAME AND LOCATION: S:\PSC\EAG\WP\981591-B.RCM

CASE BACKGROUND

On November 10, 1998, Gulf petitioned the Commission for approval of its proposed Good Cents Conversion Program (Program). Gulf's petition requests approval to recover Program expenses through the Energy Conservation Cost Recovery (ECCR) clause. The proposed Program offers participating customers a one-time \$200 rebate, as well as a \$50 rebate for qualifying heating/cooling contractors, to install high-efficiency electric heat pump systems as a replacement for existing air conditioning units and natural gas, fuel oil, or propane heating systems. All heat pumps installed under the proposed Program must have a minimum Seasonal Energy Efficiency Rating (SEER) of 11.0.

All residential customers in Gulf's service territory whose homes have an existing combustion furnace fueled by natural gas, fuel oil, or propane are eligible to participate in the proposed Program. Customers whose homes have existing electric strip heat or heat pumps are not eligible to participate. Gulf plans to target, for program participation, customers with existing equipment that is 10 to 15 years old with an average SEER of 7.0.

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Gulf will require that an on-site energy audit be performed on the residence prior to payment of applicable rebates.

The Commission initially denied approval of the proposed Program as Proposed Agency Action (Order No. PSC-99-0684-FOF-EG, issued April 7, 1999). On April 28, 1999, Gulf petitioned for a formal proceeding on the Commission's Proposed Agency Action. On August 19, 1999, Peoples Gas System (Peoples) was granted intervention in this docket. A Commission hearing was held on October 12, 1999, and the parties filed post-hearing briefs on November 9, 1999.

ISSUE 1: Is Gulf Power Company's proposed Good Cents Conversion Program cost-effective?

RECOMMENDATION: Under Gulf's base-case assumptions, the proposed Program is cost-effective to Gulf's all-electric customers. However, the record is unclear whether the proposed Program would be cost-effective to Gulf's dual-fuel (electric and natural gas) customers. Further, the proposed Program has a long (13-year) payback for participating customers. This suggests that the proposed Program is marketable only when combined with Gulf's free gas-to-electric water heater conversion program.

POSITION OF THE PARTIES

GULF POWER COMPANY: Yes. Using very conservative assumptions, the Good Cents Conversion Program passes all cost effectiveness tests as follows: RIM = 1.19, Participant = 1.39, TRC = 1.88. Peoples Gas System [Peoples] advocates an analysis that uses only the savings associated with a change from a 10.0 SEER heat pump to an 11.0 SEER heat pump, a program analysis period of 15 years and the exclusion of the monthly customer charge in the gas cost. The program is still cost-effective under each of the three cost-effectiveness tests if these three assumptions are used in the analysis.

PEOPLES: No. Gulf's analysis showing the program to be cost-effective is flawed by erroneous and incomplete input assumptions. Certain assumed benefits are overstated. If these shortcomings are corrected, the proposed program will not meet established cost-effectiveness criteria.

STAFF ANALYSIS: The record shows that the Program, as proposed, is cost-effective to Gulf's all-electric customers, which are those customers who do not receive natural gas service. (Exhibit 1). Under Gulf's base-case assumptions, the proposed Program has a benefit-cost ratio of 1.74 under the Rate Impact measure (RIM), 1.65 under the Participants test, and 2.20 under the Total Resource Cost (TRC) test. (Exhibit 1).

It is not clear to staff whether the proposed Program is also cost-effective to Gulf's dual-fuel customers, which are those customers who receive electric service from Gulf and natural gas service from another company such as Peoples. The irony of the proposed Good Cents Conversion Program is that some gas customers located in Gulf's service territory would have to pay two ECCR factors for conflicting purposes: one to Gulf for a DSM program that decreases gas load; and, one to natural gas companies such as Peoples for existing programs which increase gas load.

Gulf estimates that the proposed Program will have a total of 5000 participating customers by the year 2004. (Exhibit 1).

Participating customers are expected to spend an average of \$3000 minus a \$200 rebate, or a net total of \$2800, to install new electric HVAC equipment. (Exhibit 1). Gulf's base-case analysis shows that Program participants will not see present worth savings on their investment for thirteen years, until the year 2012. (Exhibit 1). Given the long customer payback period, staff believes that the \$200 rebate amount is too small to encourage customers to change out functioning HVAC equipment sooner than absolutely necessary, such as when existing equipment fails.

Gulf currently offers a non-ECCR funded program which provides a free electric water heater, or a \$140 rebate to purchase one, as a replacement for an existing, functioning gas water heater. (TR 74). Staff shares Peoples' concern that Gulf may use the free electric water heater program as a marketing tool to sweeten the pot for participants in the Good Cents Conversion Program. (TR 109-110). Staff believes that the mere fact that customers can get a free electric water heater from Gulf may soften the blow of spending \$2800 for new HVAC equipment. Staff recommends that unless the free electric water heater program is marketed to customers in concert with the proposed Program, Gulf will not get much response to a stand-alone Good Cents Conversion Program with a thirteen year payback.

Staff agrees with Peoples' claim that if Gulf markets the proposed program in concert with the free gas-to-electric water heater conversion program, winter peak demand and annual energy consumption would increase because of additional water heater load. (TR 105). Further, Peoples claims in its brief that the conversion of additional gas appliances to electric ones would erode any possible cost-effectiveness from the proposed Program. While staff agrees that the cost-effectiveness should decline, the record contains no benefit-cost ratios of the combined free electric water heater / Good Cents Conversion Program to support Peoples' claim.

A gas furnace and a gas water heater are the two appliances which consume the greatest amount of natural gas in a typical home. (TR 77). By specifying an all-electric HVAC equipment replacement, Gulf's proposed Program would eliminate the gas furnace. Gulf's non-ECCR free gas-to-electric water heater conversion program could eliminate the gas water heater as well. Staff concludes that these two programs, when combined, are an attempt by Gulf to reduce natural gas-consuming appliances from the homes in its service area. Staff is concerned that Gulf may market the free gas-to-electric water heater conversion program to customers to sell them on the proposed Good Cents Conversion Program. As Gulf witness Spangenburg noted, the Commission can not effectively insure that the free water heater program is not being marketed in concert with the proposed Program. (TR 77).

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In summary, the Program appears to be cost-effective to Gulf's all-electric customers. There is uncertainty whether the proposed Program is cost-effective to Gulf's electric customers who also receive natural gas service. Staff is concerned that the proposed Program has a long payback period for participating customers. This indicates that Gulf may need to market the free gas-to-electric water heater conversion program to get customers to participate in the proposed Good Cents Conversion Program.

ISSUE 2: Is Gulf Power Company's cost-effectiveness analysis based on accurate assumptions?

RECOMMENDATION: No. Gulf's base-case assumptions overstate the proposed Program's cost-effectiveness as well as the demand and energy savings. Under more realistic assumptions, the proposed Program would increase annual energy consumption and increase the payback period for Program participants from 13 years to 22 years. This would further Gulf's need to market the free gas-to-electric water heater conversion program in concert with the Good Cents Conversion Program.

POSITION OF THE PARTIES

GULF POWER COMPANY: Yes. Gulf utilized conservative and accurate assumptions in its cost-effectiveness analysis. Gulf assumed a 1680 square foot home with a central air-conditioning unit having a SEER of 7 and a central gas furnace with an Annual Fuel Utilization Efficiency (AFUE) of 68%. The existing system was assumed to be replaced with a heat pump having a Seasonal Energy Efficiency Ratio (SEER) of 11.0 and a Heating Season Performance Factor (HSPF) of 7.4. A thirty year analysis period is appropriate and was utilized.

PEOPLES: No. Gulf has not incorporated reasonable summer peak demand, winter peak demand, annual energy usage or per-unit natural gas price assumptions in its cost-effectiveness analysis. Assumed benefits associated with summer electric peak demand reduction and annual electric energy consumption are overstated by ignoring existing building code requirements. The proposed program will dramatically increase weather-sensitive winter electric peak demand. Finally, the overstated cost of natural gas, the presence of free riders, and consequential conversion of additional gas appliances to electric ones will erode any possible cost-effectiveness.

STAFF ANALYSIS: Gulf's base-case assumption is that customers will remove functioning, though inefficient (7.0 SEER) equipment and install new, energy-efficient (11.0 SEER) equipment. (TR 39). Florida's building code requires that heating, ventilating, and air conditioning (HVAC) equipment installed in new construction must meet a minimum rating of 10.0 SEER. (TR 42). Because of the building code requirement, new HVAC units less efficient than 10.0 SEER are rarely available. Gulf Witness Spangenburg testified that "99% of the units that go in are 10 SEER or higher." (TR 43).

As discussed in Issue 1, staff believes that the \$200 rebate amount is too small to encourage customers to replace functioning HVAC equipment sooner than absolutely necessary. When existing equipment fails, the most readily available new HVAC equipment is rated at or above 10.0 SEER. Therefore, staff concludes that

Gulf's proposed Program truly captures only the demand and energy savings associated with upgrading from 10.0 SEER to 11.0 SEER. This is a more realistic assumption.

Gulf's base-case assumptions rely on a mid-1980's study of over 400 customers who replaced existing HVAC systems with new heat pumps. The study shows that 27.3% of these customers gave "needed major repairs" as the reason for equipment replacement. (TR 32). However, this study used a small sample size and was performed nearly 15 years ago. As recently as 1998, Gulf monitored 843 installations, in its own service area, of high-efficiency HVAC equipment as a replacement for existing air conditioners or heat pumps. (TR 150). However, Gulf did not investigate why these customers replaced their old equipment. (TR 45). Staff believes that Gulf clearly should have done so rather than rely on a 15-year old study.

As stated in its brief, Peoples is concerned with Gulf's base-case 7.0 SEER to 11.0 SEER assumption and the resulting decreased summer peak demand savings and increased annual energy consumption. Peoples believes that if Gulf markets the proposed program in concert with the free gas-to-electric water heater conversion program, winter peak demand savings would decrease because they would not include the incremental increase in winter peak demand caused by additional water heater load. (TR 105). Staff shares these concerns.

Table 1 illustrates how the differences in SEER assumptions affect the proposed Program's estimated demand and energy savings.

TABLE 1: DEMAND AND ENERGY SAVINGS FOR PROPOSED PROGRAM		
	Gulf's Base-Case Assumptions (7.0 to 11.0 SEER)	Staff Recommended Assumptions (10.0 to 11.0 SEER)
Winter Peak Demand	<i>INCREASE</i> 22 MW Total 4.4 KW per part.	<i>INCREASE</i> 22 MW total 4.4 KW per part.
Summer Peak Demand	DECREASE 9.5 MW total 1.9 KW per part.	DECREASE 1.5 MW total 0.3 KW per part.
Annual Energy Consumption	DECREASE 5,150,000 KWh total 1,030 KWh per part.	<i>INCREASE</i> 6,950,000 KWh total 1,390 KWh per part.

(Exhibits 1, 2).

As shown in Table 1, there is no change in the forecasted winter peak demand *increase* between Gulf's base-case assumptions and staff recommended assumptions. Both cases identically assume that a natural gas heating system is replaced with an electric heat pump. For its base-case analysis, Gulf believes that efficient air conditioning will create energy savings during summer months that more than offset increased energy consumption during winter months from a new electric heater. (TR 25). However, based on realistic assumptions, summer peak demand savings are expected to drop to 1.5 MW total (0.3 KW per participant) and total annual energy consumption is estimated to *increase* by 6,950,000 kWh (1,390 kWh per participant). (Exhibit 2).

Given staff's recommendation that the proposed Program's demand and energy savings be evaluated on upgrading from 10.0 SEER to 11.0 SEER equipment, it is also appropriate to evaluate cost-effectiveness on this basis. Table 2 illustrates how the differences in SEER assumptions affect the proposed Program's cost-effectiveness.

TABLE 2: COST-EFFECTIVENESS RESULTS OF PROPOSED PROGRAM		
	Gulf's Base-Case Assumptions (7.0 to 11.0 SEER)	Staff Recommended Assumptions (10.0 to 11.0 SEER)
Rate Impact Measure (RIM)	1.74	1.41
Total Resource Cost (TRC)	2.20	1.32
Participants	1.65	1.14

(Exhibits 1, 2).

Under the more reasonable 10.0 SEER to 11.0 SEER assumption, Program participants will have an even longer (22-year) payback period. (Exhibit 2). Staff believes that the longer payback period gives a greater incentive to Gulf to use the free gas-to-electric water heater conversion program as a marketing tool to sweeten the pot for potential participants in the proposed Good Cents Conversion Program. Staff's concerns with using ECCR dollars to market a non-ECCR program are discussed in Issue 1.

In summary, staff recommends that Gulf's base-case assumptions overstate the proposed Program's cost-effectiveness as well as the demand and energy savings. In addition, under realistic assumptions, annual energy consumption would increase and the payback period for Program participants would increase from 13 years to 22 years.

ISSUE 3: Under Gulf Power Company's proposed Good Cents Conversion Program, are customers likely to replace existing inefficient heating, ventilating, and air conditioning (HVAC) equipment only if it fails?

RECOMMENDATION: Staff believes that the \$200 rebate offered by Gulf is too small to encourage customers to change out functioning HVAC equipment sooner than absolutely necessary, such as when existing equipment fails.

POSITION OF THE PARTIES

GULF POWER COMPANY: No. The low efficiency units which would be candidates for replacement by Gulf's program are not at or near the end of the normal useful life and would not be expected, with any reasonable degree of probability, to otherwise be replaced by the customer. Additionally, Gulf expects its program to specifically encourage customers to change out equipment prior to the end of its functional life.

PEOPLES: Gulf's analysis indicates that the program is designed to replace electric air conditioning equipment at or near the end of its useful life.

STAFF ANALYSIS: As discussed in Issues 1 and 2, Program participants are expected to have a 13-year to 22-year payback period to recover their \$2800 investment. (Exhibit 2). Given this fact, staff believes that the \$200 rebate amount is too small to encourage customers to change out functioning HVAC equipment sooner than absolutely necessary, such as when existing equipment fails. Gulf's proposed Program would target existing HVAC equipment that is nearly 15 years old. (TR 39). Staff believes that Gulf may intend to offer additional incentives, such as the existing non-ECCR free gas-to-electric water heater conversion program, to sweeten the pot for potential participants in the Good Cents Conversion Program.

In summary, Gulf's proposed Program will target existing HVAC equipment that is nearly 15 years old. Program participants are expected to wait from 13 to 22 years to recover their \$2800 investment. These facts suggest that customers would not replace their existing equipment unless it is at or near the end of its useful life.

ISSUE 4: Is Gulf Power Company's proposed Good Cents Conversion Program an energy conservation program, or, rather, electricity competing with natural gas?

RECOMMENDATION: As a stand-alone program or when combined with Gulf's free gas-to-electric water heater conversion program, the proposed Good Cents Conversion program competes with natural gas because it encourages fuel switching.

POSITION OF THE PARTIES

GULF POWER COMPANY: The Good Cents Conversion Program is an energy conservation program. The program reduces energy consumption and peak demand and is cost-effective using the Commission's approved methodology and is consistent with the Florida Energy Efficiency and Conservation Act (FEECA). The only competitive effect of the program is natural, resulting from the infusion of a superior high-efficiency HVAC product into the HVAC system market. FEECA advocates the use of high-efficiency systems.

PEOPLES: No position.

STAFF ANALYSIS: Gulf's proposed Program is designed to encourage customers to choose electric appliances over than natural gas ones. Gulf witness Spangenburg testified that the proposed Program encourages electricity to compete with natural gas. (TR 79). Staff believes that the use of conservation programs as a competitive tool was not intended by FEECA or the Commission.

One reason for the Commission's Proposed Agency Action denying Gulf's proposed Program was because it would cause electricity to compete with natural gas. Staff recommends that the evidentiary hearing provided no new substantial evidence except for revealing Gulf's non-ECCR free gas-to-electric water heater conversion program (TR 74), which could be marketed together with the proposed Good Cents Conversion Program. See Issues 1 and 2. Therefore, staff recommends that the record supports the conclusion that Gulf's proposed Good Cents Incentive Program would cause electricity to compete with natural gas.

ISSUE 5: Is Gulf Power Company's proposed Good Cents Conversion Program consistent with the Florida Energy Efficiency and Conservation Act?

RECOMMENDATION: No. Even under Gulf's base-case assumptions, the proposed Program is expected to increase Gulf's system winter peak demand by approximately 22 MW. Under realistic assumptions, the proposed Program will also increase annual energy consumption by approximately 6,950,000 kWh. Winter peak demand, annual energy consumption, and summer peak demand are all expected to increase even more when the proposed Program is combined with Gulf's existing free gas-to-electric water heater conversion program.

POSITION OF THE PARTIES

GULF POWER COMPANY: Yes. The Good Cents Conversion Program meets the requirements of FEECA because the program would result in a reduction in annual kWh consumption and a reduction in Gulf Power's annual peak demand which occurs in the summer. In addition, the weather-sensitive peak demand for natural gas, which occurs in the winter in Northwest Florida, would also experience a reduction.

PEOPLES: No. The program, if approved, would significantly increase winter peak demand, significantly increase annual electricity consumption, and only minimally decrease summer peak demand, violating both the letter and intent of FEECA. Additionally, when appropriate input assumptions are used, the proposed program is not cost-effective.

STAFF ANALYSIS: FEECA places emphasis on reducing the growth rates of weather-sensitive peak demand, reducing and controlling the growth rates of electricity consumption, and reducing the consumption of expensive resources such as petroleum fuels. Sections 366.80-366.85, Florida Statutes. FEECA does not contain any language regarding the cost-effectiveness of DSM programs.

As discussed in Issue 2, under realistic assumptions, the proposed Program is expected to increase annual energy consumption for Program participants. As also discussed in Issue 2, the proposed Program is expected to increase winter peak demand under base-case *and* realistic assumptions. The record evidence does not indicate exactly how much Gulf's free gas-to-electric water heater conversion program will further increase winter peak demand, summer peak demand, or annual energy consumption. However, it is reasonable to conclude that all three should definitely increase if gas appliances are replaced with electric ones.

One reason for the Commission's Proposed Agency Action denying Gulf's proposed Program was because it was not consistent with FEECA. Staff recommends that the evidentiary hearing provided no

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new substantial evidence supporting a different conclusion. (Exhibits 1 and 2). See Issues 1 and 2. Therefore, staff recommends that the record supports the conclusion that Gulf's proposed Good Cents Conversion Program is not consistent with the Florida Energy Efficiency and Conservation Act.

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ISSUE 6: Should the Commission approve Gulf Power Company's proposed Good Cents Conversion Program, including approval for cost recovery through the Energy Conservation Cost Recovery (ECCR) Clause?

RECOMMENDATION: No. Staff recommends that the Commission deny the proposed Program, including cost recovery through the ECCR Clause, because the proposed Program: (1) increases winter peak demand and annual energy consumption, contrary to the intent of FEECA; (2) has an extremely long payback period of 22 years under the Participants test; (3) encourages customers to switch from natural gas heating to electric heating; and (4) may be used to market an existing free gas-to-electric water heater conversion program.

POSITION OF THE PARTIES

GULF POWER COMPANY: Yes.

PEOPLES: No.

STAFF ANALYSIS: As discussed in previous issues, the record demonstrates that Gulf's proposed Good Cents Conversion Program is expected to increase winter peak demand and, under realistic assumptions, increase annual energy consumption as well. This is contrary to the intent of FEECA. Further, when combined with Gulf's free electric water heater conversion program, additional increases in demand and energy could materialize. Finally, Program participants are not expected to see present worth benefits for 22 years under realistic assumptions. For these reasons, staff recommends that the Commission deny the proposed Good Cents Conversion Program, including approval for cost recovery through the ECCR clause.

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ISSUE 7: Should the docket be closed?

RECOMMENDATION: The docket should be closed after the time for filing an appeal has run.

POSITION OF THE PARTIES

GULF POWER COMPANY: Yes.

PEOPLES: Yes.

STAFF ANALYSIS: Upon the entry of the Final Order, no further Commission action will be required, absent a Motion for Reconsideration or Notice of Appeal. Therefore, the docket should be closed after the time for filing an appeal has run.