Susan D. Ritenour
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ORIGINAL

GULF POWER
A SOUTHERN COMPANY

February 16, 2007

Ms. Blanca S. Bayo, Director
Division of the Commission Clerk
and Administrative Services
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee FL 32399-0870

Dear Ms. Bayo:

070119-EG

RE: Petition for Approval of Modifications to Gulf Power Company's Demand-Side Management Programs

Enclosed are an original and fifteen copies of the Petition for Approval of Modifications to Certain Demand-Side Management Programs of Gulf Power Company to be filed with the Florida Public Service Commission.

Also enclosed is a 3.5 inch double sided, high density diskette containing the Petition in Microsoft Word format as prepared on a Windows NT based computer.

Sincerely,

Susan D. Ritenour

bh

Enclosures

cc w/encl.: Beggs & Lane
Jeffrey A. Stone, Esq.

ORIGINAL

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Petition for Approval of Modifications to Gulf Power Company's Demand-Side Management Programs	Docket No.: 070119-EG Filed: February 16, 2007

PETITION FOR APPROVAL OF MODIFICATIONS TO CERTAIN DEMAND-SIDE MANAGEMENT PROGRAMS OF GULF POWER COMPANY

Gulf Power Company ("Gulf Power" and/or "the Company"), pursuant to Sections 366.82 and 366.06(1), Florida Statutes (2006), and Florida Administrative Code Rule 25-17.0021 petitions the Florida Public Service Commission ("Commission") for approval of modifications to Demand-Side Management ("DSM") programs as described in this petition, and to authorize Gulf Power to recover through the Energy Conservation Cost Recovery ("ECCR") clause reasonable and prudent costs associated with implementation of such programs. In support of this petition Gulf Power states:

1. Gulf Power is a public utility subject to the jurisdiction of the Commission pursuant to Chapter 366 of the Florida Statutes. Gulf Power's General Offices are located at One Energy Place, Pensacola, Florida 32520.

2. The names and addresses of Gulf Power's representatives to receive communications regarding this docket are:

Jeffrey A. Stone
Russell A. Badders
Steven R. Griffin
Beggs & Lane
P.O. Box 12950
Pensacola, FL 32591

Susan D. Ritenour
Secretary and Treasurer
Gulf Power Company
One Energy Place
Pensacola, FL 32520-0780

3. Gulf Power is subject to FEECA, Sections 366.80-366.85 and 403.519, Florida Statutes (2006), and its Energy Conservation Cost Recovery clause is subject to the Commission's jurisdiction. Pursuant to FEECA and Commission rules implementing FEECA, Gulf Power is required to seek the Commission's approval of modifications to its DSM programs and is entitled to seek recovery of associated costs. Gulf Power has a substantial interest in whether the Commission approves the requested modifications and authorizes cost recovery for plan implementation costs.

4. By Order No. PSC-05-0273-PAA-EG, issued April 6, 2005 in Docket No. 040032-EG, the Commission approved Gulf Power's DSM Plan for meeting its conservation goals established in that docket. The Plan consists of a portfolio of individual DSM programs which include in part: Residential Geothermal Heat Pump and Commercial Geothermal Heat Pump Programs.

5. In this petition, Gulf Power is proposing modifications to its Residential and Commercial Geothermal Heat Pump programs. These programs have experienced moderate success in the past; however, the Company desires to increase customer participation to achieve the approved DSM Plan goals. Therefore, in an effort to grow participation, the Company proposes an increase to the incentives offered by these programs. Summaries of the modifications that Gulf Power is proposing in this Petition are contained in the paragraphs that follow.

6. Approval of 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. See Section 366.81, Florida Statutes (2006); Rule 25-17.002(2), Florida

Administrative Code (2006). Reducing the growth rate of weather sensitive peak demand will benefit not only Gulf Power's individual customers who reduce their demand through participation in the modified DSM programs, but also all other customers on Gulf Power's system. See Rule 25-17.001(3), Florida Administrative Code.

Residential Geothermal Heat Pump Program

7. The objective of the Residential Geothermal Heat Pump Program is to reduce the demand and energy requirements of new and existing residential customers through the promotion and installation of advanced and emerging geothermal systems. Gulf Power proposes to modify its Residential Geothermal Heat Pump Program by increasing the customer incentive from $150/ton to $400/ton. A complete description including the Cost-Effectiveness Analysis of the Residential Geothermal Heat Pump Program as modified is contained in Appendix 1.

8. As the cost of home ownership continues to escalate in Florida, consumers are faced with difficult decisions in their spending. The Company believes that increased incentives will motivate customers to make the sound economic choices regarding energy improvements such as those offered by this program. As a result, this modification will help Gulf Power meet the DSM goals stated in its DSM Plan that has previously been approved by this Commission.

Commercial Geothermal Heat Pump Program

9. The objective of the Commercial Geothermal Heat Pump Program is to reduce the demand and energy requirements of new and existing Commercial/Industrial customers through the promotion and installation of advanced and emerging geothermal systems. Gulf Power proposes to modify its Commercial Geothermal Heat Pump Program by increasing the customer incentive for commercial, full closed loop projects from $150/ton to $400/ton and hybrid closed

loop projects from $75/ton to $200/ton. A complete description including the Cost-Effectiveness Analysis of the Commercial Geothermal Heat Pump Program as modified is contained in Appendix 2.

10. With rising costs in all aspects of business, consumers are faced with difficult decisions in their spending. The Company believes that increased incentives will motivate customers to make the sound economic choices regarding energy improvements such as those offered by this program. As a result, this modification will help Gulf Power meet the DSM goals stated in its DSM Plan that has previously been approved by this Commission.

11. Gulf Power's Residential and Commercial Heat Pump Programs, as modified, are cost-effective. In Appendices 1 and 2, Gulf Power has shown, using the Commission's cost-effectiveness methodology, the cost-effectiveness of each of the proposed programs, as modified.

12. Gulf Power is not aware of any disputed issues of material fact. Gulf Power's proposed modifications to its DSM programs should be approved. The Commission should authorize recovery of the reasonable and prudent costs associated with these modifications to Gulf Power's programs through the ECCR clause. The statutes and rule which entitle Gulf Power to relief are Sections 366.82(2), 366.06(1), Florida Statutes (2006), and Florida Administrative Code Rule 25-17.0021 (2006).

13. There has not been agency action in this proceeding. Therefore, Gulf Power cannot provide a statement of when and how Gulf Power received notice of agency action.

WHEREFORE, Gulf Power respectfully requests that the Commission: (1) approve Gulf Power's proposed modifications to its DSM programs, (2) authorize Gulf Power to recover through the ECCR clause reasonable and prudent expenditures associated with the implementation of the modified programs, and (3) grant such other relief as may be appropriate.

Respectfully submitted this 16th day of February, 2007.

JEFFREY A. STONE
Florida Bar No. 325953
RUSSELL A. BADDERS
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Attorneys for Gulf Power Company

Residential Geothermal Heat Pump Program

- **Program Description**

The objective of the Residential Geothermal Heat Pump Program is to reduce the demand and energy requirements of new and existing residential customers through the promotion and installation of advanced and emerging geothermal systems. Due to the long life of space conditioning equipment, the choices that are made over the next decade regarding space conditioning equipment will have important economic and environmental ramifications lasting well into the future. Geothermal heat pumps provide significant benefits to participating customers in the form of reduced operating costs and increased comfort levels, and are superior to other available heating and cooling technologies with respect to source efficiency and environmental impacts. Gulf Power Company's Geothermal Heat Pump Program is designed to overcome existing market barriers, specifically, lack of consumer awareness, knowledge and acceptance of this technology. This program promotes efficiency levels well above current market conditions, specifically those units with an Energy Efficiency Ratio (EER) of 13.0 or higher.

According to the Department of Energy (DOE), geothermal technology is the most energy-efficient and environmentally clean space-conditioning system available today. Additionally, a recent DOE study indicates that geothermal systems have the lowest life-cycle cost of any HVAC system available today.

In addition, the Environmental Protection Agency (EPA) in a 1993 report titled "Space Conditioning: The Next Frontier" stated that advanced residential space conditioning equipment can save consumers money, significantly reduce emissions and can be highly cost-effective for utility conservation programs. In this report, EPA explored advanced alternative space conditioning technologies and the opportunities each provides for cost-effective energy

savings and pollution prevention. EPA compared the performance and cost of emerging high-efficiency space conditioning equipment with equipment already on the market (i.e. high efficiency air source heat pump, emerging ground source heat pump, emerging gas-fired heat pump, advanced gas furnace/high efficient AC, etc.). All comparisons were based on source energy performance, taking into account losses associated with all stages of energy use, i.e. energy production, transmission, and distribution.

A summary of the major findings included:

- The emerging ground source heat pump had the highest source heating season performance factor (HSPF) in all locations.
- The emerging ground source heat pump also had the highest cooling EER's in all locations, followed by the advanced ground source heat pump.
- The emerging and advanced ground source heat pump systems were highly cost-effective as replacement units when compared to all other systems.

Gulf Power Company intends to continue this program over a sustained period of time, currently expected to be about five years, in order to educate consumers on geothermal technology and raise awareness about the availability, affordability, and improved customer satisfaction associated with these units. This commitment is necessary to foster a stable market for this promising technology. Not only will this increase customer and trade ally confidence, it will serve to encourage competition within this technology market and reduce the higher initial cost generally associated with new technology.

- **Participation Standards**

The Residential Geothermal Heat Pump Program provides Gulf Power Company's residential customers an incentive to install advanced residential geothermal technologies; specifically, geothermal HVAC systems. Gulf Power Company will promote these systems by providing: $400/ton incentive for single-family or multi-family projects; financing availability for qualified geothermal installations in existing homes; economic analyses and comparisons; and Gulf Power Company will participate in field days and demonstration projects. Multi-family geothermal systems with total tonnage above 50 tons are subject to having their incentive offer based upon a cost effectiveness analysis performed by the Company. Single-family geothermal systems with total tonnage above 10 tons are subject to having their incentive offer based upon a company cost effectiveness analysis.

- All Gulf Power Company served single-family and multi-family dwellings in new or existing structures are eligible for the program. Single-family is defined as a unit occupied by one family or household which includes single-family detached or duplex. Multi-family is defined as three or more units attached within a single structure.
- All participants must be willing to have an existing home energy survey or new home plan review completed to address proper HVAC sizing, proper installation and other conservation measures.
- To qualify for the $400/ton incentive, the geothermal heat pump must meet the minimum efficiency of 13.0 EER at 86° entering water temperature (ARI / ISO 13256-1 Performance Data) and water flow of 3.0 gallons per minute per ton.
- The incentive will be paid for the installed tonnage of geothermal equipment associated with each dwelling unit.

- All participants will be paid $400/ton in one single payment after verification and inspection by a Gulf Power Company Energy Consultant.

To qualify for the $400/ton incentive, the closed loop geothermal installation must meet specific requirements. A copy of the Residential Geothermal Heat Pump Program Limitations, Inspection Outline, and Installation Guidelines is provided in Attachment A of this Appendix. A Gulf Power Company Energy Consultant will perform a final inspection to ensure that all installation guidelines are met.

- **Benefits and Costs**

Simulated kW and kWh consumption was compared to the 2006 minimum code base unit of 13.0 SEER for new home construction and 10.0 SEER for existing home construction. The minimum summer kW reduction projected was .72 ranging to 1.07, dependent on new home or existing home construction, respectively. The weighted average summer kW reduction was .99 for all homes. The annual kWh reductions range from 206 for new home construction to 441 for existing homes with a weighted average annual net reduction of 647 kWh. The kW and kWh savings are measured at the meter.

The energy and demand savings were determined through engineering analysis using Wrightsoft's "Manual J" calculation and energy analysis software to compare a home with air source equipment and geothermal equipment. Weighted average inputs are based on Gulf's 2001 through 2005 new home and existing home geothermal installations. The computations include only the effect of equipment efficiency alterations, not BTUH capacity or thermal package changes. Greater savings in kW and kWh will be realized when thermal packages are also improved.

- **Monitoring and Evaluation**

  Gulf Power Company will utilize its Gulf Account Reporting System (GARS) to track all geothermal installations. The Company will further validate engineering analysis of energy and demand savings with billing data. In order to assess levels and reasons for program non-participation, interviews may be conducted with program participants, dealers and customers that choose not to participate. Dependent upon the level of participation, surveys may also be conducted among customers with the geothermal heat pump and those that have other systems to establish levels of customer satisfaction with the technology.

- **Cost-Effectiveness**

  This program is cost-effective using the FPSC's approved methodology (Rule 25-17.008). The cost-effectiveness analyses are included in Attachment B of this Appendix.

  Customer cost figures are derived from contractor estimates for the installed measures. A significant amount of research and development is taking place with regard to reducing first cost of geothermal installations. Research by the Department of Energy, the Electric Power Research Institute, the Geothermal Heat Pump Consortium, the International Ground Source Heat Pump Association, and other groups is expected to result in significant reductions in installation costs in the future.

Residential Geothermal Heat Pump Program

Limitations

Gulf Power Company shall not be liable for any incidental or consequential damages resulting from the installation of the geothermal system. The Homeowner recognizes and agrees that Gulf Power Company is not a seller, distributor, manufacturer or installer of the equipment described herein, and that the Company makes no warranties, express or implied, including warranties of merchantability or fitness for purpose. Homeowner agrees that Gulf Power will not be liable for any direct, indirect or consequential damages suffered by the homeowner or third party caused by the heating and cooling system, its use, installation, manufacture, or performance or lack of performance.

Inspections

Gulf Power Company shall have the right to verify the installations by conducting an inspection of the homeowner's dwelling. The Company shall have the right to enter the homeowner's dwelling and to make an inspection at a reasonable time by giving to the homeowner a notice of intention to inspect at least 48 hours prior to such inspection. Customer shall not withhold consent to Gulf Power Company to conduct an inspection and agrees to be present at the dwelling at the time of the inspection.

Residential Geothermal Heat Pump

Installation Guidelines

Job specifications and installation guidelines are as follows:

- Must be closed loop geothermal heat pump.
- The geothermal heat pump must meet the minimum efficiency of 13.0 EER at 86° entering water temperature (ARI / ISO 13256-1 Performance Data) and water flow of 3.0 gallons per minute per ton.
- Pressure and temperature (P/T) ports shall be installed on all loop systems.
- All piping for loop shall be PE 3408 polyethylene pipe with heat fused joints.
- Exposed polyethylene pipe shall be insulated with minimum 3/8 inch armaflex or equivalent to prevent condensation and potential moisture damage to surrounding materials.
- All loop piping is to be pressure tested above ground prior to placing in bore holes or trench.
- All vertical bore holes are to be grouted/sealed at surface penetrations or in accordance with standard water management requirements.
- Equipment shall be sized according to Manual J or equivalent load calculation procedure.
- Loop contractor guarantees that loop temperature will not exceed design condition of 100 degree entering water temperature during normal cooling operations.
- Unit should be set on sound deadening/vibration isolation pad.
- Equipment contractor should provide manufacturer letter of certification to install ground source closed loop heat pumps.
- Loop contractor should provide manufacturer letter of certification in heat fusion, design (sizing), and installation of ground source closed loop systems.
- Ducts should be visually inspected for leakage. Any visible problem areas or leakage points should be repaired or sealed.

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INPUT DATA – PART 1

Cost-Effectiveness Analysis per Rule 25-17.008 Florida Administrative Code

I. Program Demand Impacts and Line Losses		
(1) Change in Peak kW Customer at meter	-0.99	kW/Cus
(2) Change in Peak kW per Customer at generator	-1.30	kW Gen/Cus
(3) kW Line Loss Percentage	14.21%	
(4) Change in KWh per Customer at generator	(705)	kWh/Cus/Yr
(5) kWh Line Loss Percentage	9.00%	
(6) Group Line Loss Multiplier	1.0007	
(7) Annual Change in Customer kWh at Meter	(647)	kWh/Cus/Yr
* (8) Change in Winter kW per Cust at meter	0.60	kW/Cus

II. Economic Life and K-Factors		
(1) DSM Program Study Period	30	Years
(2) Economic Life of Incremental Generation	30	Years
(3) Economic Life of Incremental T&D	35	Years
(4) K-Factor for Generation	1.4728	
(5) K-Factor for T&D	1.4805	
* (6) Switch: Rev Req (0) or Val-of-Def (1)	1	

III. Utility & Customer Costs		
(1) Utility Nonrecurring Cost Per Customer	$200.00	$/Cus
(2) Utility Recurring Cost Per Customer	$0.00	$/Cus/Year
(3) Utility Cost Escalation Rate	0.00%	
(4) Customer Equipment Cost	$5,828.00	$/Cus
(5) Customer Equpiment Cost Escalation Rate	1.65%	
(6) Customer O&M Cost	($392.00)	$/Cus/Year
(7) Customer O&M Cost Escalation Rate	1.65%	
* (8) Customer Tax Credit Per Installation	$0.00	$/Cus
* (9) Customer Tax Credit Escalation Rate	1.65%	
* (10) Change in Supply Costs	$0.00	$/Cus/Year
* (11) Supply Costs Escalation Rate	1.65%	
* (12) Utility Discount Rate	8.62%	
* (13) Utility AFUDC Rate	7.48%	
* (14) Utility Nonrecurring Rebate/Incentive	$1,332.00	$/Cus
* (15) Utility Recurring Rebate/Incentive	$0.00	$/Cus/Year
* (16) Utility Rebate/Incentive Escalation Rate	0.00%	

IV. Incremental Generation, Transmission, & Distribution Costs		
(1) Base Year	2007	
(2) In-Service Year For Incremental Generation	2009 **	
(3) In-Service Year For Incremental T & D	2008	
(4) Base Year Incremental Generation Cost	$389.35	$/kW
(5) Base Year Incremental Transmission Cost	$140.00	$/kW
(6) Base Year Incremental Distribution Cost	$65.29	$/kW
(7) Gen, Tran, & Dist Cost Escalation Rate	1.65%	
(8) Generator Fixed O & M Cost	$5.41	$/kW/Yr
(9) Generator Fixed O&M Escalation Rate	1.65%	
(10) Transmission Fixed O & M Cost	$1.75	$/kW/Yr
(11) Distribution Fixed O & M Cost	$1.63	$/kW/Yr
(12) T&D Fixed O&M Escalation Rate	1.65%	
(13) Incremental Gen Variable O & M Costs	$1.505	$/kW/Yr
(14) Incre Gen Variable O&M Cost Esc Rate	1.25%	
(15) Incremental Gen Capacity Factor	9.14%	
(16) Incremental Generating Unit Fuel Cost	$0.1375	$/kWh
(17) Incremental Gen Unit Fuel Esc Rate	0.15%	
(18) Incremental Purchased Capacity Cost	$14.52	$/KW/YR
(19) Incremental Capacity Cost Esc Rate	5.39%	
Stop Revenue Loss at In-Service Year? (Y=1, N=0)	0	

V. (1) Non-Fuel Cost In Customer Bill (Base Year)		
(1) Non-Fuel Cost In Customer Bill (Base Year)	$0.0465	$/kWh
(2) Non-Fuel Escalation Rate	Per Table	
(3) Customer Demand Charge Per kW (Base Year)	$0.0000	$/kW/Mo
(4) Demand Charge Escalation Rate	Per Table	
* (5)Average Annual Change in Monthly Billing kW	0	kW/Mo.

Summary Results for This Analysis

	RIM	Participants'
NPV Benefits($000s)	$3,555	$11,104
NPV Costs ($000s)	$3,437	$9,116
NPV Net Benefits ($000s)	$118	$1,987
Benefit:Cost Ratio	1.034	1.218

* Supplemental information.
** The relevant avoidable generation unit is a combustion turbine peaking unit.

APPENDIX 1
ATTACHMENT B
Residential Geothermal
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Total Resource Cost-Effectiveness Measure
Cost-Effectiveness Analysis per Rule 25-17.008 Florida Administrative Code

1	2	3	4	5	6	7	8	9	10	11	12	13
Year	Change in Electric Supply Costs ($000s)	Utility's Program Costs ($000s)	Participants' Program Costs ($000s)	Other Costs ($000s)	Other Benefits ($000s)	Incremental Generation Cap Costs ($000s)	Incremental T&D Cap Costs ($000s)	Incremental Prog Induced Fuel Costs ($000s)	Total Costs ($000s)	Total Benefits ($000s)	Total Net Benefits ($000s)	Cumulative Discounted Net Benefits ($000s)
2007	$0	$60	$1,631	$0	$0	$0	$0	($10)	$1,691	$10	($1,681)	($1,681)
2008	$0	$60	$1,538	$0	$0	$0	($21)	($22)	$1,598	$43	($1,555)	($3,113)
2009	$0	$60	$1,442	$0	$0	($106)	($33)	($35)	$1,502	$173	($1,329)	($4,239)
2010	$0	$40	$771	$0	$0	($128)	($40)	($42)	$811	$211	($600)	($4,707)
2011	$0	$40	$700	$0	$0	($154)	($49)	($49)	$740	$252	($489)	($5,058)
2012	$0	$40	$627	$0	$0	($187)	($57)	($57)	$667	$301	($366)	($5,300)
2013	$0	$40	$551	$0	$0	($212)	($66)	($65)	$591	$342	($249)	($5,452)
2014	$0	$40	$472	$0	$0	($236)	($74)	($72)	$512	$382	($130)	($5,525)
2015	$0	$0	($849)	$0	$0	($231)	($76)	($73)	$0	$1,229	$1,229	($4,890)
2016	$0	$0	($863)	$0	$0	($235)	($77)	($74)	$0	$1,249	$1,249	($4,297)
2017	$0	$0	($877)	$0	$0	($237)	($78)	($77)	$0	$1,270	$1,270	($3,742)
2018	$0	$0	($892)	$0	$0	($244)	($80)	($76)	$0	$1,291	$1,291	($3,222)
2019	$0	$0	($906)	$0	$0	($248)	($81)	($78)	$0	$1,313	$1,313	($2,736)
2020	$0	$0	($921)	$0	$0	($255)	($82)	($78)	$0	$1,336	$1,336	($2,280)
2021	$0	$0	($937)	$0	$0	($259)	($84)	($80)	$0	$1,360	$1,360	($1,853)
2022	$0	$0	($952)	$0	$0	($262)	($85)	($85)	$0	$1,384	$1,384	($1,453)
2023	$0	$0	($968)	$0	$0	($265)	($86)	($90)	$0	$1,408	$1,408	($1,078)
2024	$0	$0	($984)	$0	$0	($267)	($88)	($93)	$0	$1,432	$1,432	($727)
2025	$0	$0	($1,000)	$0	$0	($269)	($89)	($99)	$0	$1,457	$1,457	($398)
2026	$0	$0	($1,016)	$0	$0	($278)	($91)	($98)	$0	$1,483	$1,483	($90)
2027	$0	$0	($1,033)	$0	$0	($284)	($92)	($101)	$0	$1,510	$1,510	$198
2028	$0	$0	($1,050)	$0	$0	($289)	($94)	($104)	$0	$1,537	$1,537	$469
2029	$0	$0	($1,068)	$0	$0	($294)	($95)	($107)	$0	$1,564	$1,564	$722
2030	$0	$0	($1,085)	$0	$0	($300)	($97)	($110)	$0	$1,592	$1,592	$960
2031	$0	$0	($1,103)	$0	$0	($309)	($98)	($113)	$0	$1,624	$1,624	$1,183
2032	$0	$0	($1,121)	$0	$0	($316)	($100)	($117)	$0	$1,654	$1,654	$1,392
2033	$0	$0	($1,140)	$0	$0	($323)	($102)	($120)	$0	$1,684	$1,684	$1,588
2034	$0	$0	($1,159)	$0	$0	($330)	($103)	($124)	$0	$1,715	$1,715	$1,772
2035	$0	$0	($1,178)	$0	$0	($337)	($105)	($127)	$0	$1,747	$1,747	$1,944
2036	$0	$0	($1,197)	$0	$0	($345)	($107)	($131)	$0	$1,779	$1,779	$2,106
Nominal		$380	($14,567)			($7,198)	($2,328)	($2,506)	$8,112	$34,331	$26,219	
NPV		$299	$1,150	$0	$0	($2,125)	($700)	($730)	$6,687	$8,793	$2,106	

Discount Rate =	8.62%
Benefit/Cost Ratio =	1.31

APPENDIX 1
ATTACHMENT B
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Participants' Cost-Effectiveness Measure

Cost-Effectiveness Analysis per Rule 25-17.008 Florida Administrative Code

1	2	3	4	5	6	7	8	9	10	11	12
Year	Customer Equip Costs ($000s)	Customer O&M Costs ($000s)	Other Costs ($000s)	Other Benefits ($000s)	Change in Participants' Electric Bills ($000s)	Tax Credits ($000s)	Utility Paid Rebates & Incentives ($000s)	Total Costs ($000s)	Total Benefits ($000s)	Total Net Benefits ($000s)	Cumulative Discounted Net Benefits ($000s)
2007	$1,748	($118)	$0	$0	($16)	$0	$400	$1,748	$533	($1,215)	($1,215)
2008	$1,777	($239)	$0	$0	($32)	$0	$400	$1,777	$670	($1,107)	($2,234)
2009	$1,807	($365)	$0	$0	($48)	$0	$400	$1,807	$812	($994)	($3,077)
2010	$1,224	($453)	$0	$0	($63)	$0	$266	$1,224	$782	($442)	($3,421)
2011	$1,244	($544)	$0	$0	($75)	$0	$266	$1,244	$886	($359)	($3,679)
2012	$1,265	($638)	$0	$0	($90)	$0	$266	$1,265	$994	($271)	($3,858)
2013	$1,286	($735)	$0	$0	($102)	$0	$266	$1,286	$1,104	($182)	($3,969)
2014	$1,307	($835)	$0	$0	($115)	$0	$266	$1,307	$1,217	($90)	($4,019)
2015	$0	($849)	$0	$0	($122)	$0	$0	$0	$971	$971	($3,518)
2016	$0	($863)	$0	$0	($124)	$0	$0	$0	$987	$987	($3,050)
2017	$0	($877)	$0	$0	($127)	$0	$0	$0	$1,004	$1,004	($2,611)
2018	$0	($892)	$0	$0	($128)	$0	$0	$0	$1,019	$1,019	($2,200)
2019	$0	($906)	$0	$0	($130)	$0	$0	$0	$1,036	$1,036	($1,817)
2020	$0	($921)	$0	$0	($131)	$0	$0	$0	$1,052	$1,052	($1,458)
2021	$0	($937)	$0	$0	($134)	$0	$0	$0	$1,071	$1,071	($1,121)
2022	$0	($952)	$0	$0	($138)	$0	$0	$0	$1,090	$1,090	($806)
2023	$0	($968)	$0	$0	($143)	$0	$0	$0	$1,110	$1,110	($511)
2024	$0	($984)	$0	$0	($146)	$0	$0	$0	$1,130	$1,130	($234)
2025	$0	($1,000)	$0	$0	($151)	$0	$0	$0	$1,151	$1,151	$26
2026	$0	($1,016)	$0	$0	($152)	$0	$0	$0	$1,168	$1,168	$269
2027	$0	($1,033)	$0	$0	($155)	$0	$0	$0	$1,188	$1,188	$496
2028	$0	($1,050)	$0	$0	($159)	$0	$0	$0	$1,209	$1,209	$709
2029	$0	($1,068)	$0	$0	($162)	$0	$0	$0	$1,230	$1,230	$908
2030	$0	($1,085)	$0	$0	($166)	$0	$0	$0	$1,251	$1,251	$1,094
2031	$0	($1,103)	$0	$0	($167)	$0	$0	$0	$1,270	$1,270	$1,269
2032	$0	($1,121)	$0	$0	($170)	$0	$0	$0	$1,292	$1,292	$1,432
2033	$0	($1,140)	$0	$0	($173)	$0	$0	$0	$1,313	$1,313	$1,585
2034	$0	($1,159)	$0	$0	($177)	$0	$0	$0	$1,335	$1,335	$1,728
2035	$0	($1,178)	$0	$0	($180)	$0	$0	$0	$1,357	$1,357	$1,862
2036	$0	($1,197)	$0	$0	($183)	$0	$0	$0	$1,380	$1,380	$1,987
Nominal	$11,659	($26,226)			($3,857)		$2,531	$11,659	$32,614	$20,955	
NPV	$8,393	($7,966)	$0	$0	($1,145)	$0	$1,993	$9,116	$11,104	$1,987	

Discount Rate =	8.62%
Benefit/Cost Ratio =	1.22

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Ratepayers' Impact Cost-Effectiveness Measure
Cost-Effectiveness Analysis per Rule 25-17.008 Florida Administrative Code

1	2	3	4	5	6	7	8	9	10	11	12	13	14
Year	Change in Electric Supply Costs ($000s)	Utility's Program Costs ($000s)	Utility Paid Rebates & Incentives ($000s)	Change in Electric Revenues ($000)	Incremental Generation Cap Costs ($000s)	Incremental T&D Cap Costs ($000s)	Incremental Prog Induced Fuel Costs ($000s)	Other Costs ($000s)	Other Benefits ($000s)	Total Costs ($000s)	Total Benefits ($000s)	Total Net Benefits to All Customers ($000s)	Cumulative Discounted Net Benefits ($000s)
2007	$0	$60	$400	($16)	$0	$0	($10)	$0	$0	$476	$10	($466)	($466)
2008	$0	$60	$400	($32)	$0	($21)	($22)	$0	$0	$491	$43	($448)	($879)
2009	$0	$60	$400	($48)	($106)	($33)	($35)	$0	$0	$508	$173	($334)	($1,162)
2010	$0	$40	$266	($63)	($128)	($40)	($42)	$0	$0	$369	$211	($158)	($1,286)
2011	$0	$40	$266	($75)	($154)	($49)	($49)	$0	$0	$382	$252	($130)	($1,379)
2012	$0	$40	$266	($90)	($187)	($57)	($57)	$0	$0	$396	$301	($95)	($1,442)
2013	$0	$40	$266	($102)	($212)	($66)	($65)	$0	$0	$409	$342	($67)	($1,483)
2014	$0	$40	$266	($115)	($236)	($74)	($72)	$0	$0	$422	$382	($40)	($1,505)
2015	$0	$0	$0	($122)	($231)	($76)	($73)	$0	$0	$122	$380	$258	($1,372)
2016	$0	$0	$0	($124)	($235)	($77)	($74)	$0	$0	$124	$386	$262	($1,247)
2017	$0	$0	$0	($127)	($237)	($78)	($77)	$0	$0	$127	$392	$266	($1,131)
2018	$0	$0	$0	($128)	($244)	($80)	($76)	$0	$0	$128	$399	$272	($1,022)
2019	$0	$0	$0	($130)	($248)	($81)	($78)	$0	$0	$130	$406	$277	($919)
2020	$0	$0	$0	($131)	($255)	($82)	($78)	$0	$0	$131	$415	$284	($822)
2021	$0	$0	$0	($134)	($259)	($84)	($80)	$0	$0	$134	$423	$289	($731)
2022	$0	$0	$0	($138)	($262)	($85)	($85)	$0	$0	$138	$432	$294	($647)
2023	$0	$0	$0	($143)	($265)	($86)	($90)	$0	$0	$143	$441	$298	($567)
2024	$0	$0	$0	($146)	($267)	($88)	($93)	$0	$0	$146	$448	$301	($493)
2025	$0	$0	$0	($151)	($269)	($89)	($99)	$0	$0	$151	$457	$306	($424)
2026	$0	$0	$0	($152)	($278)	($91)	($98)	$0	$0	$152	$467	$315	($359)
2027	$0	$0	$0	($155)	($284)	($92)	($101)	$0	$0	$155	$477	$321	($297)
2028	$0	$0	$0	($159)	($289)	($94)	($104)	$0	$0	$159	$486	$328	($240)
2029	$0	$0	$0	($162)	($294)	($95)	($107)	$0	$0	$162	$497	$335	($185)
2030	$0	$0	$0	($166)	($300)	($97)	($110)	$0	$0	$166	$507	$341	($135)
2031	$0	$0	$0	($167)	($309)	($98)	($113)	$0	$0	$167	$521	$353	($86)
2032	$0	$0	$0	($170)	($316)	($100)	($117)	$0	$0	$170	$532	$362	($40)
2033	$0	$0	$0	($173)	($323)	($102)	($120)	$0	$0	$173	$544	$371	$3
2034	$0	$0	$0	($177)	($330)	($103)	($124)	$0	$0	$177	$557	$380	$44
2035	$0	$0	$0	($180)	($337)	($105)	($127)	$0	$0	$180	$569	$389	$82
2036	$0	$0	$0	($183)	($345)	($107)	($131)	$0	$0	$183	$582	$399	$118
Nominal		$380	$2,531	($3,857)	($7,198)	($2,328)	($2,506)			$6,768	$12,032	$5,263	
NPV		$299	$1,993	($1,145)	($2,125)	($700)	($730)	$0	$0	$3,437	$3,555	$118	

Discount Rate =	8.62%
Benefit/Cost Ratio =	1.03

APPENDIX 1
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Commercial Geothermal Heat Pump Program

- **Program Description**

The objective of the Commercial Geothermal Heat Pump Program is to reduce the demand and energy requirements of new and existing Commercial/Industrial customers through the promotion and installation of advanced and emerging geothermal systems. Due to the long life of space conditioning equipment, the choices that are made over the next decade regarding space conditioning equipment will have important economic and environmental ramifications lasting well into the future. Geothermal heat pumps provide significant benefits to participating customers in the form of reduced operating costs and increased comfort levels, and are superior to other available heating and cooling technologies with respect to source efficiency and environmental impacts. Gulf Power Company's Geothermal Heat Pump program is designed to overcome existing market barriers, specifically, lack of consumer awareness, knowledge and acceptance of this technology. This program will promote efficiency levels well above current market conditions, specifically those units with an Energy Efficiency Ratio (EER) of 13.0 or higher.

Both full geothermal closed loop ground systems and hybrid system technology are included in this Commercial Geothermal Heat Pump Program. Hybrid systems, for the purpose of this program, are closed geothermal ground heat exchange loops of sufficient size to be adequate for a system's heating requirement, and utilize a fluid cooler to reject excess loop heat during the cooling season.

According to the Department of Energy (DOE) geothermal technology is the most energy-efficient and environmentally clean space-conditioning system available today. Additionally, a recent DOE study indicates that geothermal systems have the lowest life-cycle cost of any HVAC system today.

Major findings from a 1993 EPA report titled "Space Conditioning: The Next Frontier," include:

- The emerging ground source heat pump had the highest source heating season performance factor (HSPF) in all locations.
- The emerging ground source heat pump also had the highest cooling EER in all locations, followed by the advanced ground source heat pump.
- The emerging and advanced ground source heat pump systems were highly cost-effective as replacement units when compared to all other systems.

Gulf Power Company intends to continue this program over a sustained period of time, currently expected to be about five years, in order to educate Commercial consumers on geothermal technology and raise awareness about the availability, affordability, and improved customer satisfaction associated with these units. This commitment is necessary to foster a stable market for this promising technology. Not only will this increase customer and trade ally confidence, it will serve to encourage competition within this technology market and reduce the higher initial cost generally associated with new technology.

- **Participation Standards**
  - The Commercial Geothermal Heat Pump Program will provide Gulf Power Company's commercial customers an incentive to install advanced commercial space conditioning technologies; specifically, geothermal HVAC systems. Gulf Power Company will promote these systems by providing: estimates of heating and cooling operating costs to commercial customers installing geothermal heat pumps in commercial facilities;

$400/ton incentive for commercial, full closed loop projects or $200/ton for hybrid closed loop projects. These incentive amounts for both full and hybrid geothermal systems are for up to 50 ton system totals. Geothermal systems with total tonnage above 50 tons will be evaluated on a case by case basis for cost-effectiveness and their incentive offering will be included in the DSM Energy Services program.

- All Gulf Power Company served Commercial/Industrial facilities in new or existing structures are eligible for the program.
- All participants must be willing to have an existing facility energy audit or new facility plan review completed to address proper HVAC sizing, proper installation and other conservation measures.
- To qualify for the Commercial geothermal incentive, the geothermal heat pump units (separately or averaged) must meet the minimum efficiency of 13.0 EER at 86° (ARI/ISO-13256-1 application) entering water temperature and a nominal water flow of 3.0 gallons per minute per ton.
- The incentive will be issued for the installed tonnage of geothermal units in the facility.
- All participants will be paid per facility in one single payment after verification and inspection by a Gulf Power Company Energy Consultant.

A copy of the Commercial Geothermal Heat Pump Program Limitations, Inspection Outline, and Installation Guidelines is provided in Attachment A of this Appendix.

- **Benefits and Costs**

The kW and kWh reductions available from the application of commercial geothermal heat pumps are compared to a minimum code air source heat pump base unit of 10.1 EER for new construction installations and 8.9 EER for existing system retrofit installations. The minimum summer kW reduction projected was 4.5 to 6.2 kW, dependent on new or existing installation for the standard commercial building in Gulf Power's service area, which is 4,444 square feet average in size. The weighted average summer kW reduction was 4.77 kW for all commercial installations. The weighted average annual kWh reduction for the combined new and existing facility installations is 769 kWh. All kW and kWh reductions are measured at the meter.

Calculations for kW and kWh savings are derived from the Commercial Energy Simulation Program (EnerSim) computer energy modeling simulation. Inputs are based upon the average sized commercial building square footage of total building stock. The energy model variations include only the effect of equipment efficiency alteration, not equipment capacity or thermal package and internal load changes.

- **Monitoring and Evaluation**

Gulf Power Company will utilize its Gulf Account Reporting System (GARS) to track all geothermal installations. Gulf Power Company will further validate engineering analysis of energy and demand savings with billing data and metering of customer equipment. In order to assess levels and reasons for program non-participation, interviews will be conducted with program participants, dealers and customers that choose not to participate. Dependent upon the level of participation, surveys may be conducted among customers with the geothermal heat pump and those that have other systems to establish levels of customer satisfaction with the technology.

- **Cost-Effectiveness**

This program is cost-effective using the FPSC's approved methodology (Rule 25-17.008). The cost-effectiveness analyses are included in Attachment B of this Appendix.

Customer cost figures are derived from contractor estimates for the installed measures. A significant amount of research and development is taking place with regard to reducing first cost of geothermal installations. Research by the Department of Energy, the Electric Power Research Institute, the Geothermal Heat Pump Consortium, the International Ground Source Heat Pump Association, and other groups is expected to result in significant reductions in installation costs in the future.

Commercial Geothermal Heat Pump Program

LIMITATIONS

The owner recognizes and agrees that Gulf Power Company is not a seller, distributor, manufacturer or installer of the equipment described herein, and that Gulf Power Company makes no warranties, express or implied, including warranties of merchantability or fitness for purpose. Owner agrees that Gulf Power Company will not be liable for any direct, indirect or consequential damages suffered by the owner or third party caused by the heating and cooling system, its use, installation, manufacture, or performance or lack of performance.

INSPECTIONS

Gulf Power Company shall have the right to verify installation guideline conformance by conducting an inspection of the Owner's facility. Gulf Power Company shall have the right to enter the owner's facility and to make an inspection at a reasonable time by giving to the owner a notice of intention to inspect at least 48 hours prior to such inspection. The owner or his representative shall not withhold consent to Gulf Power Company to conduct an installation inspection.

Commercial Geothermal Heat Pump

Installation Guidelines

Job specifications and installation guidelines are as follows:

- Must be closed loop geothermal heat pump, or hybrid closed loop geothermal heat pump systems.
- The geothermal heat pump must meet the minimum efficiency of 13.0 EER at 86° entering water temperature and a nominal water flow of 3.0 gallons per minute per ton.
- Pressure and temperature (P/T) ports shall be installed on all loop systems.
- All piping for loop shall be PE 3408 polyethylene pipe with heat fused joints.
- Exposed polyethylene pipe shall be insulated with minimum 3/8 inch armaflex or equivalent to prevent condensation and potential moisture damage to surrounding materials.
- All loop piping is to be pressure tested above ground prior to placing in bore holes or trench.
- All vertical bore holes are to be grouted/sealed at surface penetrations or in accordance with standard water management requirements.
- Unit should be set on sound deadening/vibration isolation pad.
- Equipment shall be sized according to Manual "N" or equivalent load calculation procedure.
- Equipment contractor should provide manufacturer letter of certification to install ground source closed loop heat pumps.
- Loop contractor should provide manufacturer letter of certification in heat fusion, design (sizing), and installation of ground source closed loop systems.
- Loop contractor guarantees that loop temperature will not exceed design condition of 100 degree entering water temperature during normal cooling operations.
- Ducts should be visually inspected for leakage. Any visible problem areas or leakage points should be repaired or sealed.

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INPUT DATA -- PART 1

Cost-Effectiveness Analysis per Rule 25-17.008 Florida Administrative Code

I. Program Demand Impacts and Line Losses

(1) Change in Peak kW Customer at meter	-4.77	kW/Cus
(2) Change in Peak kW per Customer at generator	-6.27	kW Gen/Cus
(3) kW Line Loss Percentage	14.21%	
(4) Change in KWh per Customer at generator	(838)	kWh/Cus/Yr
(5) kWh Line Loss Percentage	9.00%	
(6) Group Line Loss Multiplier	1.0007	
(7) Annual Change in Customer kWh at Meter	(769)	kWh/Cus/Yr
* (8) Change in Winter kW per Cust at meter	-1.69	kW/Cus

II. Economic Life and K-Factors

(1) DSM Program Study Period	30	Years
(2) Economic Life of Incremental Generation	30	Years
(3) Economic Life of Incremental T&D	35	Years
(4) K-Factor for Generation	1.4728	
(5) K-Factor for T&D	1.4805	
* (6) Switch: Rev Req (0) or Val-of-Def (1)	1	

III. Utility & Customer Costs

(1) Utility Nonrecurring Cost Per Customer	$1,800.00	$/Cus
(2) Utility Recurring Cost Per Customer	$0.00	$/Cus/Year
(3) Utility Cost Escalation Rate	1.65%	
(4) Customer Equipment Cost	$11,000.00	$/Cus
(5) Customer Equpiment Cost Escalation Rate	1.65%	
(6) Customer O&M Cost	($754.59)	$/Cus/Year
(7) Customer O&M Cost Escalation Rate	1.65%	
* (8) Customer Tax Credit Per Installation	$0.00	$/Cus
* (9) Customer Tax Credit Escalation Rate	1.65%	
* (10) Change in Supply Costs	$0.00	$/Cus/Year
* (11) Supply Costs Escalation Rate	1.65%	
* (12) Utility Discount Rate	8.62%	
* (13) Utility AFUDC Rate	7.48%	
* (14) Utility Nonrecurring Rebate/Incentive	$4,400.00	$/Cus
* (15) Utility Recurring Rebate/Incentive	$0.00	$/Cus/Year
* (16) Utility Rebate/Incentive Escalation Rate	0.00%	

IV. Incremental Generation, Transmission, & Distribution Costs

(1) Base Year	2007	
(2) In-Service Year For Incremental Generation	2009 **	
(3) In-Service Year For Incremental T & D	2008	
(4) Base Year Incremental Generation Cost	$389.35	$/kW
(5) Base Year Incremental Transmission Cost	$140.00	$/kW
(6) Base Year Incremental Distribution Cost	$65.29	$/kW
(7) Gen, Tran, & Dist Cost Escalation Rate	1.65%	
(8) Generator Fixed O & M Cost	$5.41	$/kW/Yr
(9) Generator Fixed O&M Escalation Rate	1.65%	
(10) Transmission Fixed O & M Cost	$1.75	$/kW/Yr
(11) Distribution Fixed O & M Cost	$1.63	$/kW/Yr
(12) T&D Fixed O&M Escalation Rate	1.65%	
(13) Incremental Gen Variable O & M Costs	$1.505	$/kW/Yr
(14) Incre Gen Variable O&M Cost Esc Rate	1.25%	
(15) Incremental Gen Capacity Factor	9.14%	
(16) Incremental Generating Unit Fuel Cost	$0.1375	$/kWh
(17) Incremental Gen Unit Fuel Esc Rate	0.15%	
(18) Incremental Purchased Capacity Cost	$14.52	$/KW/YR
(19) Incremental Capacity Cost Esc Rate	5.39%	
Stop Revenue Loss at In-Service Year? (Y=1, N=0)	0	

V. (1) Non-Fuel Cost In Customer Bill (Base Year)

(1) Non-Fuel Cost In Customer Bill (Base Year)	$0.0207	$/kWh
(2) Non-Fuel Escalation Rate	Per Table	
(3) Customer Demand Charge Per kW (Base Year)	$5.4200	$/kW/Mo
(4) Demand Charge Escalation Rate	Per Table	
* (5)Average Annual Change in Monthly Billing kW	-2.56	kW/Mo.

Summary Results for This Analysis

	RIM	Participants'
NPV Benefits($000s)	$1,145	$2,076
NPV Costs ($000s)	$1,097	$1,356
NPV Net Benefits ($000s)	$47	$720
Benefit:Cost Ratio	1.043	1.530

* Supplemental information.
** The relevant avoidable generation unit is a combustion turbine peaking unit.

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Commercial Geothermal
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Total Resource Cost-Effectiveness Measure
Cost-Effectiveness Analysis per Rule 25-17.008 Florida Administrative Code

1	2	3	4	5	6	7	8	9	10	11	12	13
Year	Change in Electric Supply Costs ($000s)	Utility's Program Costs ($000s)	Participants' Program Costs ($000s)	Other Costs ($000s)	Other Benefits ($000s)	Incremental Generation Cap Costs ($000s)	Incremental T&D Cap Costs ($000s)	Incremental Prog Induced Fuel Costs ($000s)	Total Costs ($000s)	Total Benefits ($000s)	Total Net Benefits ($000s)	Cumulative Discounted Net Benefits ($000s)
2007	$0	$27	$154	$0	$0	$0	$0	($1)	$181	$1	($180)	($180)
2008	$0	$37	$197	$0	$0	$0	($6)	($1)	$233	$7	($226)	($388)
2009	$0	$37	$184	$0	$0	($31)	($10)	($3)	$222	$43	($178)	($539)
2010	$0	$38	$172	$0	$0	($42)	($13)	($3)	$209	$59	($151)	($657)
2011	$0	$38	$158	$0	$0	($54)	($17)	($4)	$197	$76	($121)	($744)
2012	$0	$39	$145	$0	$0	($69)	($21)	($5)	$184	$95	($88)	($802)
2013	$0	$40	$130	$0	$0	($81)	($25)	($6)	$170	$112	($58)	($837)
2014	$0	$40	$116	$0	$0	($93)	($29)	($7)	$156	$129	($27)	($853)
2015	$0	$0	($133)	$0	$0	($91)	($30)	($7)	$0	$261	$261	($718)
2016	$0	$0	($136)	$0	$0	($92)	($30)	($7)	$0	$265	$265	($592)
2017	$0	$0	($138)	$0	$0	($93)	($31)	($7)	$0	$269	$269	($474)
2018	$0	$0	($140)	$0	$0	($96)	($31)	($7)	$0	$274	$274	($364)
2019	$0	$0	($142)	$0	$0	($97)	($32)	($8)	$0	$279	$279	($260)
2020	$0	$0	($145)	$0	$0	($100)	($32)	($8)	$0	$285	$285	($163)
2021	$0	$0	($147)	$0	$0	($102)	($33)	($8)	$0	$290	$290	($72)
2022	$0	$0	($150)	$0	$0	($103)	($33)	($8)	$0	$294	$294	$13
2023	$0	$0	($152)	$0	$0	($104)	($34)	($9)	$0	$299	$299	$92
2024	$0	$0	($154)	$0	$0	($105)	($34)	($9)	$0	$303	$303	$167
2025	$0	$0	($157)	$0	$0	($106)	($35)	($10)	$0	$307	$307	$236
2026	$0	$0	($160)	$0	$0	($109)	($36)	($9)	$0	$314	$314	$301
2027	$0	$0	($162)	$0	$0	($111)	($36)	($10)	$0	$320	$320	$362
2028	$0	$0	($165)	$0	$0	($114)	($37)	($10)	$0	$325	$325	$420
2029	$0	$0	($168)	$0	$0	($116)	($37)	($10)	$0	$331	$331	$473
2030	$0	$0	($170)	$0	$0	($118)	($38)	($11)	$0	$337	$337	$523
2031	$0	$0	($173)	$0	$0	($121)	($39)	($11)	$0	$344	$344	$571
2032	$0	$0	($176)	$0	$0	($124)	($39)	($11)	$0	$351	$351	$615
2033	$0	$0	($179)	$0	$0	($127)	($40)	($12)	$0	$357	$357	$657
2034	$0	$0	($182)	$0	$0	($130)	($41)	($12)	$0	$364	$364	$696
2035	$0	$0	($185)	$0	$0	($133)	($41)	($12)	$0	$371	$371	$732
2036	$0	$0	($188)	$0	$0	($135)	($42)	($13)	$0	$378	$378	$767
Nominal		$296	($2,246)			($2,798)	($903)	($239)	$1,552	$7,442	$5,890	
NPV		$222	$156	$0	$0	($811)	($265)	($68)	$1,200	$1,967	$767	

Discount Rate =	8.62%
Benefit/Cost Ratio =	1.64

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Participants' Cost-Effectiveness Measure
Cost-Effectiveness Analysis per Rule 25-17.008 Florida Administrative Code

1	2	3	4	5	6	7	8	9	10	11	12
Year	Customer Equip Costs ($000s)	Customer O&M Costs ($000s)	Other Costs ($000s)	Other Benefits ($000s)	Change in Participants' Electric Bills ($000s)	Tax Credits ($000s)	Utility Paid Rebates & Incentives ($000s)	Total Costs ($000s)	Total Benefits ($000s)	Total Net Benefits ($000s)	Cumulative Discounted Net Benefits ($000s)
2007	$165	($11)	$0	$0	($3)	$0	$66	$165	$80	($85)	($85)
2008	$224	($27)	$0	$0	($7)	$0	$88	$224	$122	($101)	($178)
2009	$227	($43)	$0	$0	($12)	$0	$88	$227	$143	($84)	($250)
2010	$231	($59)	$0	$0	($18)	$0	$88	$231	$165	($66)	($301)
2011	$235	($77)	$0	$0	($22)	$0	$88	$235	$187	($48)	($335)
2012	$239	($94)	$0	$0	($28)	$0	$88	$239	$210	($29)	($354)
2013	$243	($112)	$0	$0	($33)	$0	$88	$243	$233	($9)	($360)
2014	$247	($131)	$0	$0	($38)	$0	$88	$247	$257	$11	($354)
2015	$0	($133)	$0	$0	($40)	$0	$0	$0	$174	$174	($265)
2016	$0	($136)	$0	$0	($41)	$0	$0	$0	$177	$177	($181)
2017	$0	($138)	$0	$0	($42)	$0	$0	$0	$180	$180	($102)
2018	$0	($140)	$0	$0	($42)	$0	$0	$0	$182	$182	($29)
2019	$0	($142)	$0	$0	($43)	$0	$0	$0	$185	$185	$40
2020	$0	($145)	$0	$0	($44)	$0	$0	$0	$188	$188	$104
2021	$0	($147)	$0	$0	($45)	$0	$0	$0	$192	$192	$165
2022	$0	($150)	$0	$0	($46)	$0	$0	$0	$195	$195	$221
2023	$0	($152)	$0	$0	($46)	$0	$0	$0	$198	$198	$274
2024	$0	($154)	$0	$0	($47)	$0	$0	$0	$202	$202	$323
2025	$0	($157)	$0	$0	($48)	$0	$0	$0	$205	$205	$370
2026	$0	($160)	$0	$0	($49)	$0	$0	$0	$209	$209	$413
2027	$0	($162)	$0	$0	($50)	$0	$0	$0	$212	$212	$453
2028	$0	($165)	$0	$0	($51)	$0	$0	$0	$216	$216	$491
2029	$0	($168)	$0	$0	($52)	$0	$0	$0	$219	$219	$527
2030	$0	($170)	$0	$0	($53)	$0	$0	$0	$223	$223	$560
2031	$0	($173)	$0	$0	($53)	$0	$0	$0	$227	$227	$591
2032	$0	($176)	$0	$0	($54)	$0	$0	$0	$230	$230	$620
2033	$0	($179)	$0	$0	($55)	$0	$0	$0	$234	$234	$648
2034	$0	($182)	$0	$0	($56)	$0	$0	$0	$238	$238	$673
2035	$0	($185)	$0	$0	($57)	$0	$0	$0	$242	$242	$697
2036	$0	($188)	$0	$0	($58)	$0	$0	$0	$246	$246	$720
Nominal	$1,810	($4,057)			($1,235)		$682	$1,810	$5,974	$4,163	
NPV	$1,249	($1,200)	$0	$0	($361)	$0	$515	$1,356	$2,076	$720	

Discount Rate =	8.62%
Benefit/Cost Ratio =	1.53

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Ratepayers' Impact Cost-Effectiveness Measure
Cost-Effectiveness Analysis per Rule 25-17.008 Florida Administrative Code

1	2	3	4	5	6	7	8	9	10	11	12	13	14
Year	Change in Electric Supply Costs ($000s)	Utility's Program Costs ($000s)	Utility Paid Rebates & Incentives ($000s)	Change in Electric Revenues ($000)	Incremental Generation Cap Costs ($000s)	Incremental T&D Cap Costs ($000s)	Incremental Prog Induced Fuel Costs ($000s)	Other Costs ($000s)	Other Benefits ($000s)	Total Costs ($000s)	Total Benefits ($000s)	Total Net Benefits to All Customers ($000s)	Cumulative Discounted Net Benefits ($000s)
2007	$0	$27	$66	($3)	$0	$0	($1)	$0	$0	$96	$1	($96)	($96)
2008	$0	$37	$88	($7)	$0	($6)	($1)	$0	$0	$132	$7	($124)	($210)
2009	$0	$37	$88	($12)	($31)	($10)	($3)	$0	$0	$137	$43	($94)	($290)
2010	$0	$38	$88	($18)	($42)	($13)	($3)	$0	$0	$143	$59	($85)	($356)
2011	$0	$38	$88	($22)	($54)	($17)	($4)	$0	$0	$149	$76	($73)	($408)
2012	$0	$39	$88	($28)	($69)	($21)	($5)	$0	$0	$155	$95	($60)	($448)
2013	$0	$40	$88	($33)	($81)	($25)	($6)	$0	$0	$161	$112	($49)	($477)
2014	$0	$40	$88	($38)	($93)	($29)	($7)	$0	$0	$167	$129	($38)	($498)
2015	$0	$0	$0	($40)	($91)	($30)	($7)	$0	$0	$40	$128	$87	($453)
2016	$0	$0	$0	($41)	($92)	($30)	($7)	$0	$0	$41	$130	$89	($411)
2017	$0	$0	$0	($42)	($93)	($31)	($7)	$0	$0	$42	$132	$90	($372)
2018	$0	$0	$0	($42)	($96)	($31)	($7)	$0	$0	$42	$134	$92	($335)
2019	$0	$0	$0	($43)	($97)	($32)	($8)	$0	$0	$43	$137	$94	($300)
2020	$0	$0	$0	($44)	($100)	($32)	($8)	$0	$0	$44	$140	$96	($268)
2021	$0	$0	$0	($45)	($102)	($33)	($8)	$0	$0	$45	$143	$98	($237)
2022	$0	$0	$0	($46)	($103)	($33)	($8)	$0	$0	$46	$145	$99	($208)
2023	$0	$0	$0	($46)	($104)	($34)	($9)	$0	$0	$46	$147	$100	($181)
2024	$0	$0	$0	($47)	($105)	($34)	($9)	$0	$0	$47	$148	$101	($157)
2025	$0	$0	$0	($48)	($106)	($35)	($10)	$0	$0	$48	$150	$102	($134)
2026	$0	$0	$0	($49)	($109)	($36)	($9)	$0	$0	$49	$155	$106	($112)
2027	$0	$0	$0	($50)	($111)	($36)	($10)	$0	$0	$50	$157	$108	($91)
2028	$0	$0	$0	($51)	($114)	($37)	($10)	$0	$0	$51	$160	$110	($72)
2029	$0	$0	$0	($52)	($116)	($37)	($10)	$0	$0	$52	$164	$112	($54)
2030	$0	$0	$0	($53)	($118)	($38)	($11)	$0	$0	$53	$167	$114	($37)
2031	$0	$0	$0	($53)	($121)	($39)	($11)	$0	$0	$53	$171	$118	($21)
2032	$0	$0	$0	($54)	($124)	($39)	($11)	$0	$0	$54	$175	$120	($5)
2033	$0	$0	$0	($55)	($127)	($40)	($12)	$0	$0	$55	$178	$123	$9
2034	$0	$0	$0	($56)	($130)	($41)	($12)	$0	$0	$56	$182	$126	$22
2035	$0	$0	$0	($57)	($133)	($41)	($12)	$0	$0	$57	$186	$129	$35
2036	$0	$0	$0	($58)	($135)	($42)	($13)	$0	$0	$58	$190	$132	$47
Nominal		$296	$682	($1,235)	($2,798)	($903)	($239)			$2,213	$3,940	$1,727	
NPV		$222	$515	($361)	($811)	($265)	($68)	$0	$0	$1,097	$1,145	$47	

Discount Rate =	8.62%
Benefit/Cost Ratio =	1.04

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