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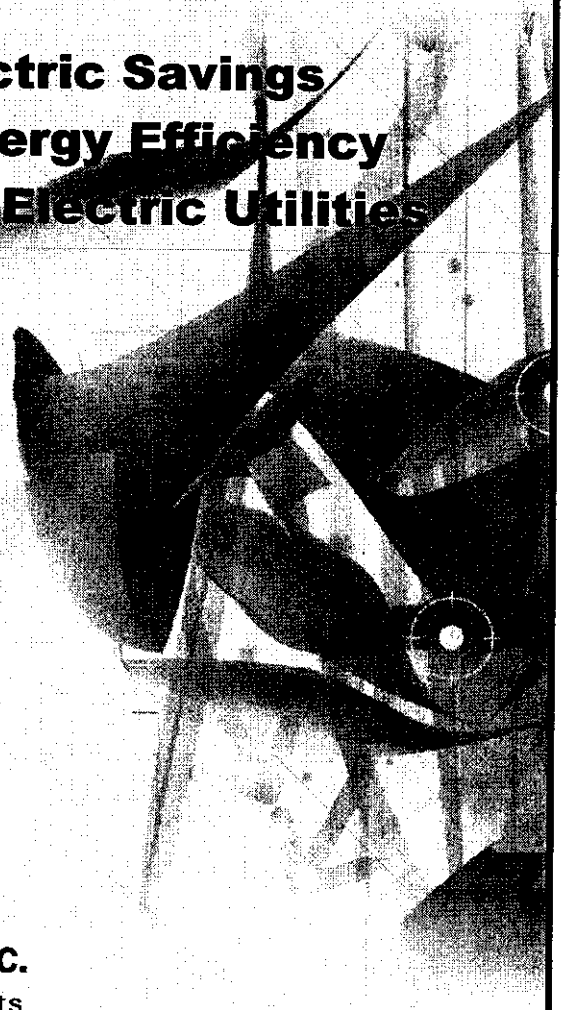
Alliance To Save Energy
and
Southern Alliance For Clean Energy

Maximum Achievable Electric Savings Potential for Top-Ranked Energy Efficiency Programs for Investor-Owned Electric Utilities In Florida



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Preface

The Alliance to Save Energy (ASE) and the Southern Alliance for Clean Energy (SACE) undertook this report to examine the maximum achievable cost effective potential for "top-ranked" energy efficiency programs in the service areas of Florida investor-owned electric utilities. At the request of ASE and SACE, GDS Associates, Inc, prepared this report, and ASE and SACE provided guidance and support to GDS in developing all underlying assumptions and methodology. The following persons provided significant contributions to this report: Harry Misuriello of the Alliance to Save Energy; Jim Presswood of the Southern Alliance for Clean Energy; and Richard Spellman, Thomas Rooney and Amber Roberts of GDS Associates.

The Alliance to Save Energy and the Southern Alliance for Clean Energy welcome comments or questions on the final draft of this report. Comments or questions should be sent to Harry Misuriello (ASE) at misuriello@ase.org or Jim Presswood at jpresswood@cleanenergy.org.

Table of Contents

1.0 Summary of Maximum Achievable Cost Effective Potential Analysis

1.1 Introduction to this Analysis

The Alliance to Save Energy and the Southern Alliance for Clean Energy have prepared a detailed analysis of the maximum achievable cost effective savings potential for top-ranked energy efficiency programs in the service areas of all investor-owned utilities in Florida.[1] Although several of Florida's investor owned electric utilities do offer energy efficiency programs, the actual energy efficiency program savings performance for these utilities (based on 2002 data from the EIA Form 861 database) in the year 2002 ranged from a low of **.07%** of annual kWh sales to a high of **.22%** of annual kWh sales (see Table 1-1 below). The Florida investor-owned utilities rank far below the utilities that are saving the most electricity (as a percent of their annual kWh sales). Each of the top ten ranked utilities in the EIA database saved over 1% of annual kWh sales per year with energy efficiency programs, far more than is being saved by Florida's investor-owned electric utilities. Unfortunately, Florida's electric IOUs are just "scratching the surface" with their energy efficiency program efforts.

Table 1-1 - Ranking of Percent of Annual kWh Sales saved with Energy Efficiency Programs - 2002 (EIA Form 861 Data for 2002)

Utility Code	Name of Utility	Percent of Annual kWh Sales saved with EE	Rank (with "1" being highest)	Total Number of Utilities With Data
6452	Florida Power & Light	0.22%	82 of 242	242
6455	Progress Energy Florida	0.07%	121 of 242	242
6457	Florida Public Utilities	NO DATA	NA	242
7801	Gulf Power	0.12%	104 of 242	242
18454	Tampa Electric	0.10%	108 of 242	242
Note: In this table, "1" would be the ranking for the highest % savings				

[1] These Florida investor-owned electric utilities include Florida Power and Light, Florida Power Corporation, Gulf Power, Tampa Electric Company, and Florida Public Utilities Company.

Table 1-2 below shows that the Florida electric IOUs also rank fairly low on the percent of annual system peak load saved with energy efficiency programs in 2002. The Florida IOU's rank in the bottom third of all electric utilities that reported data on energy efficiency program kW demand savings as a percent of system peak load in 2002. The top ten ranked utilities saved over 14% of system peak load from energy efficiency measures installed in 2002. The peak demand savings from EE programs for the Florida IOUs ranged from 0.3% to 0.6% of actual 2002 peak load.

Table 1-2 - Ranking of Percent of Annual System Peak Load Saved with Energy Efficiency Programs - 2002 (EIA Form 861 Data for 2002)

Utility Code	Name of Utility	Percent of Annual kW Peak Load saved with EE	Rank (with "1" being highest)	Total Number of Utilities With Data
6452	Florida Power & Light	0.61%	118 of 172	172
6455	Progress Energy Florida	0.42%	128 of 172	172
6457	Florida Public Utilities	NO DATA	NA	172
7801	Gulf Power	0.33%	137 of 172	172
18454	Tampa Electric	0.30%	141 of 172	172

Figure 1-1 below shows how Florida investor-owned utilities rank compared to other utilities in the United States on kWh savings from energy efficiency programs in 2002 as a percent of 2002 annual mWh sales. Figure 1-2 shows how Florida investor-owned utilities rank compared to other utilities in the United States on MW savings from energy efficiency programs in 2002 as a percent of 2002 annual peak load. Figure 1-3 shows how Florida investor-owned utilities rank compared to other utilities in the United States on energy efficiency program spending in as a percent of 2002 annual retail revenues. The detailed data supporting these rankings is provided in Appendix C. As you can see, the Florida investor-owned utilities rank far from the top ranked electric utilities in the US on all three attributes of energy efficiency program savings and spending.

Figure 1-1: Ranking of 2002 Energy Efficiency Program mWh Savings as a % of Annual mWh Sales

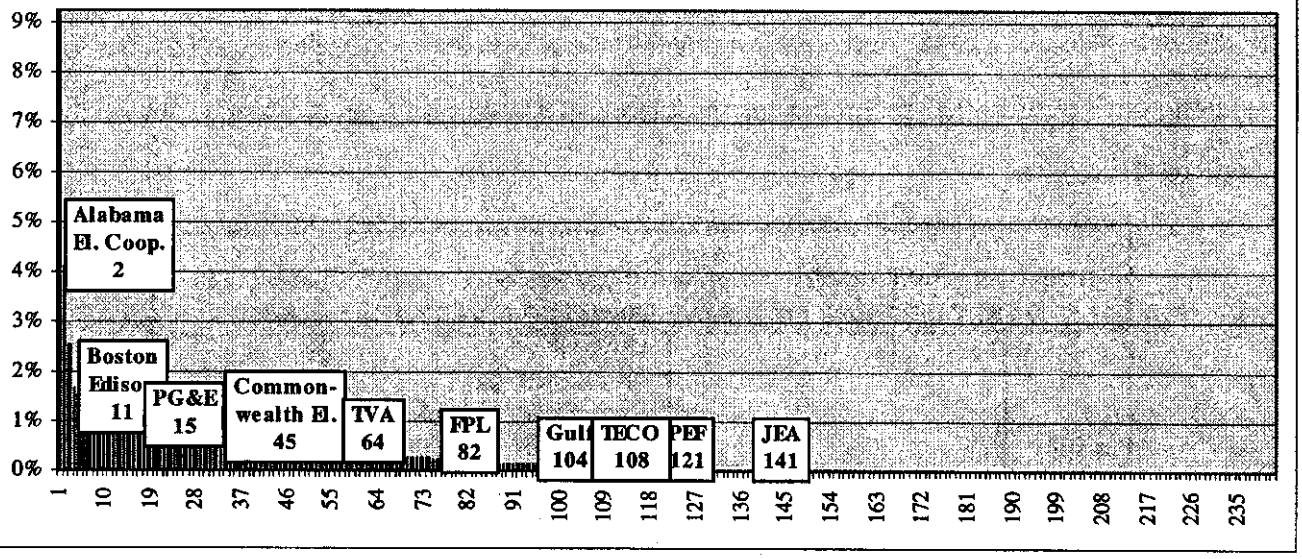


Figure 1-2: Ranking of 2002 Energy Efficiency Program Annual MW Savings as a % of 2002 System Peak Load (MW)

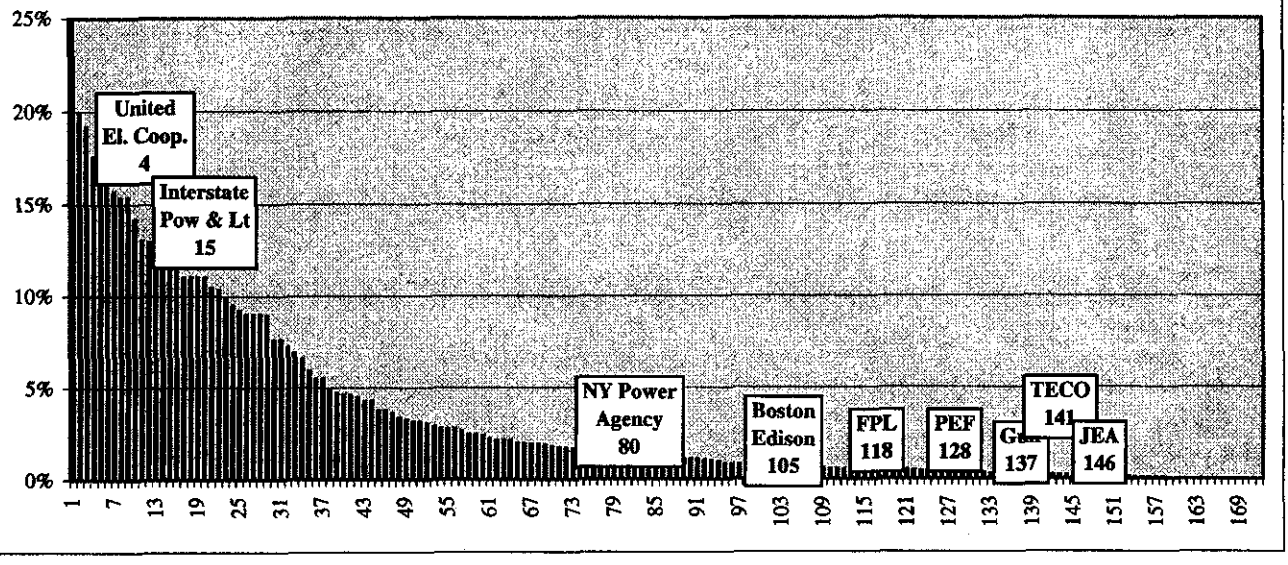
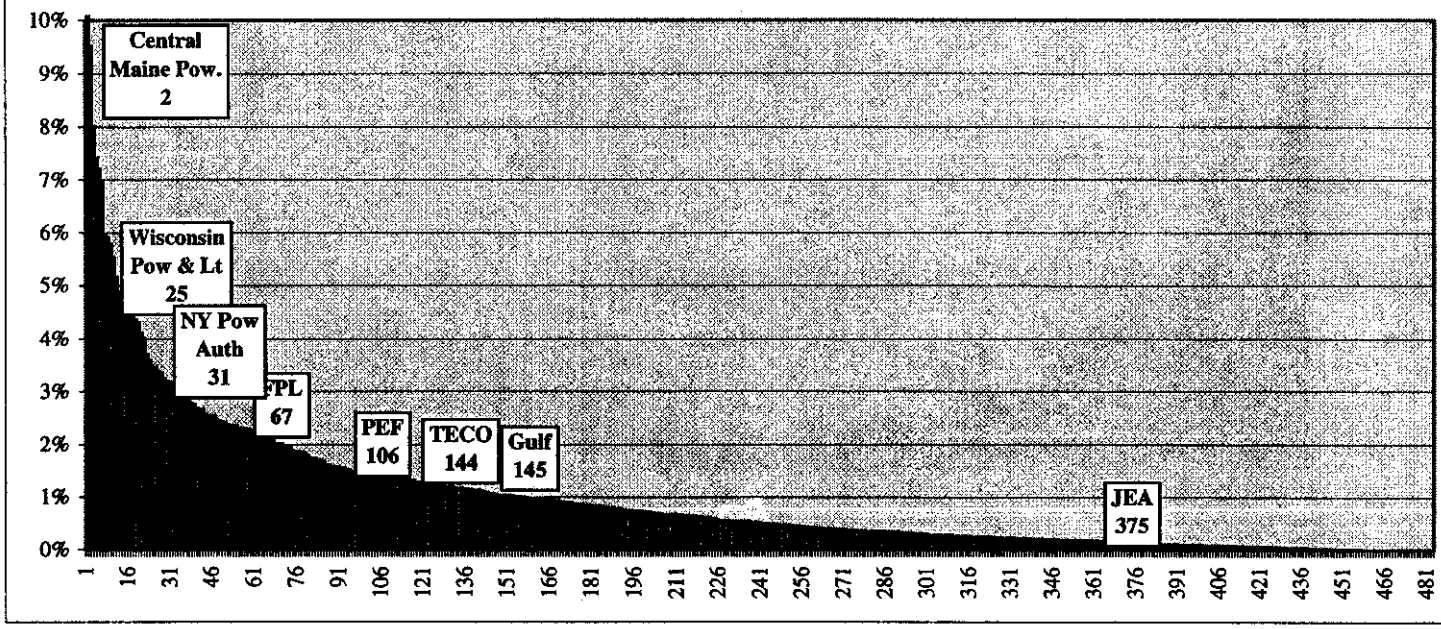


Figure 1-3: Ranking of Energy Efficiency Program Spending in 2002 as a % of 2002 Revenues



ASE and SACE have also collected the latest available information on the penetration of ENERGY STAR appliances in the State of Florida. Figures 4 to 7 below show how Florida compares to other states with respect to the penetration of Energy Star air conditioners, clothes washers, dishwashers and refrigerators. Florida ranks 39th, 35th, 34th and 27th place respectively on the penetration of these Energy Star appliances in the state (as compared to other states). This is another clear indication of the huge remaining potential for energy efficiency in the state, and an indication that Florida is lagging far behind most other states.

Figure 1-4: Ranking of Penetration of Energy Star Room Air Conditoners by State - Florida Ranks 39th at 16.4%

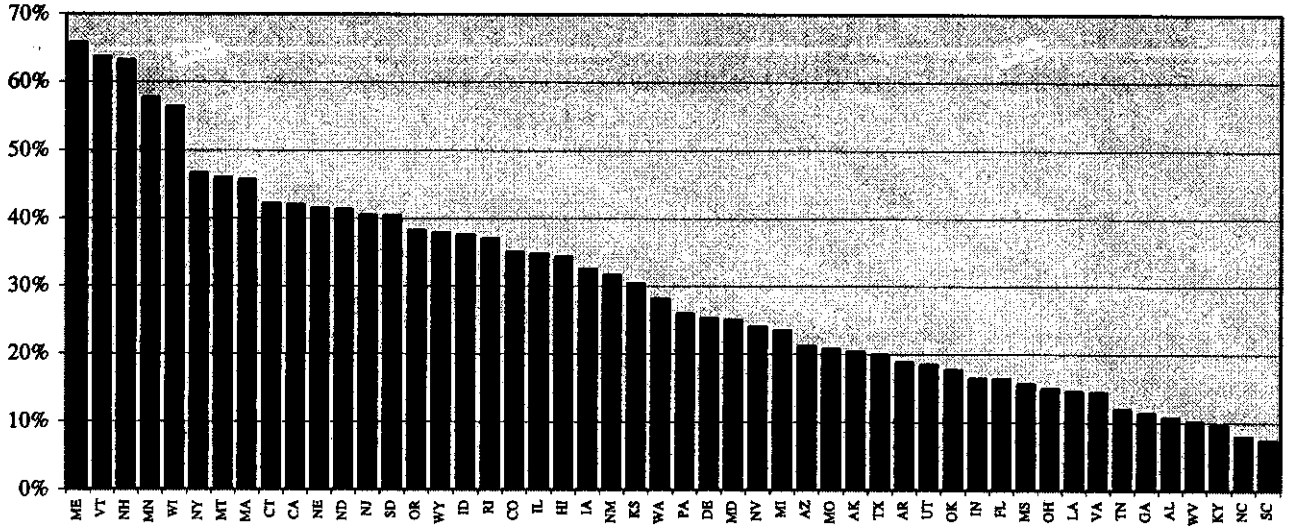


Figure 1-5: Ranking of Penetration of Energy Star Clothes Washers by State - Florida Ranks 35th at 19.7%

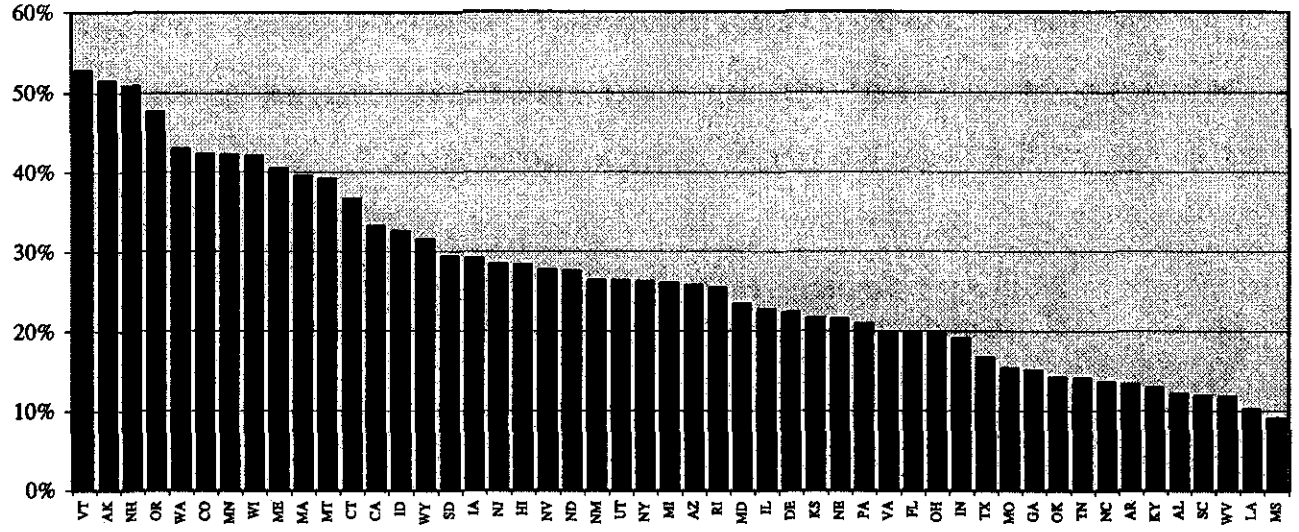


Figure 1-6: Ranking of Penetration of Energy Star Diswashers by State - Florida Ranks 34th at 55.1%

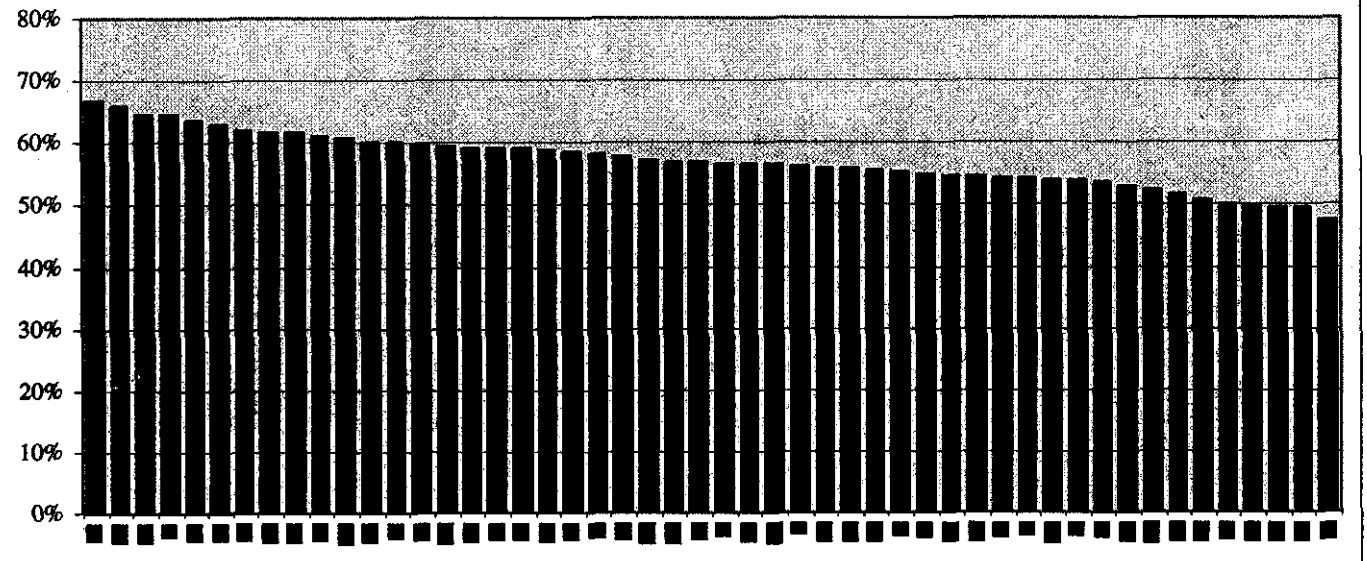
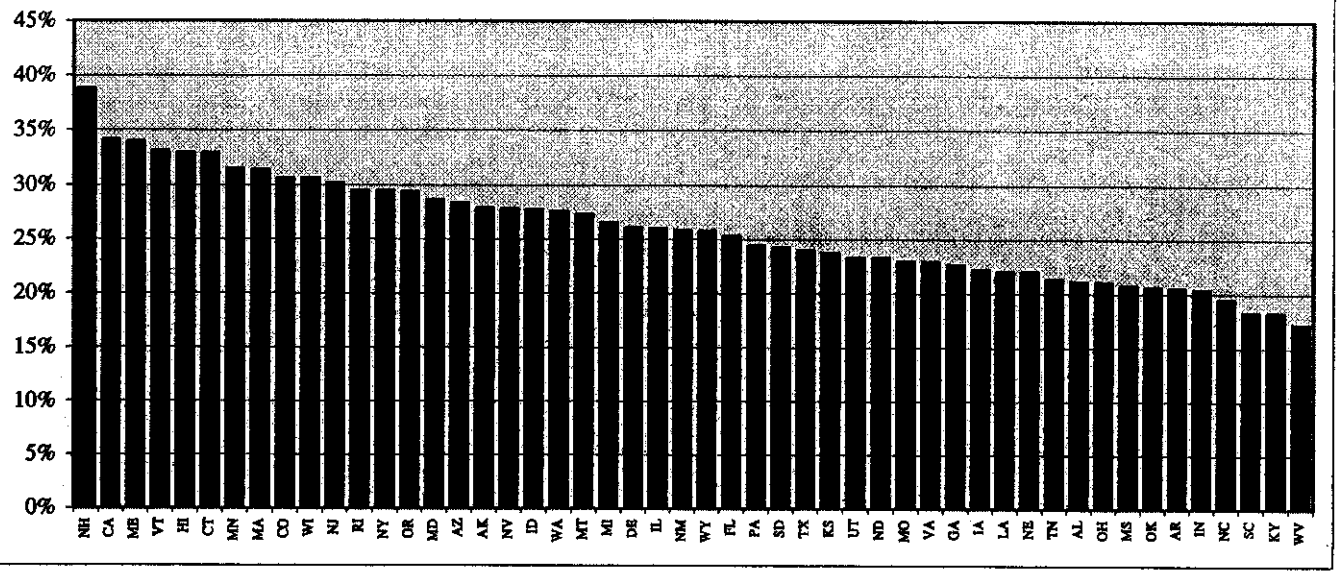


Figure 1-7: Ranking of Penetration of Energy Star Refrigerators by State - Florida Ranks 27th at 25.3%



Our detailed analysis indicates that the maximum achievable cost effective annual savings potential is **vastly** higher than what is actually being achieved by the Florida investor-owned utilities. We have examined the electric energy savings potential for two scenarios:

- Implementation of the energy efficiency programs that pass the Total Resource Cost Test (TRC)
- Implementation of only those programs that pass the Rate Impact Measure Test (RIM)

TRC Results - Our detailed analysis of efficiency measure assumptions and electric avoided costs shows that the net present value savings in these IOU service areas is approximately **$4.0 billion** from the initial round of programs for efficiency measures installed in the first year of implementation that pass the TRC Test. **$2.5 billion** of the $4.0 billion net present value savings figure represents savings of electricity, $1.4 billion is natural gas savings, $74 million is water savings and $23 million is associated with operation and maintenance savings. This electricity net present value savings figure is approximately 21% of the 2002 annual retail revenues of $12 billion for these Florida electric utilities. If the aggressive programs we propose were continued for ten years and if programs attained 80% penetration over that period, the net present value savings to the State of Florida would be approximately **$38** billion for electric, gas, water savings and O&M savings. The maximum achievable potential gWh and MW saving for the period 2004 to 2013 are presented in Appendix B of this report. Table 1-3 includes a breakdown of the net present value of savings for the residential and commercial programs by electric, gas, water, and operation and maintenance (O&M)[2].

[2] O&M savings include reductions in costs associated with the energy efficient equipment, including the avoided purchase of incandescent light bulbs due to the longer life a compact fluorescent lightbulb (CFL).

TABLE 1-3 BREAKDOWN OF NET PRESENT VALUE OF TRC SAVINGS			
	Residential	Commercial	Total
Electricity	$ 1,631,670,665.89	$925,876,262.18	$ 2,557,546,928.07
Natural Gas	$ 1,369,450,835.40	$14,578,630.04	$ 1,384,029,465,44
Water	$ 73,654,238.28	$0.00	$ 73,654,238,28
O&M	$ 23,121,473.02	$0.00	$ 23,121,473,02
Totals	$ 3,097,897,212.60	$940,454,892	$ 4,038,352,104.60

RIM Results - Under the scenario where energy efficiency programs must pass the TRC and the RIM Test, the net present value savings shrink drastically. Under the RIM Test scenario, the net present value savings from measures installed in the first year is $559 million. If the aggressive programs we propose were continued for ten years, the net present value savings to the ratepayers of these investor-owned utilities would only be $4.57 billion. It is clear that the selection of a benefit/cost test (TRC versus RIM) makes a very large difference in the savings that ratepayers can realize!

The net present value savings figures in this report include the TOTAL RESOURCE SAVINGS, not just electricity savings. Our analysis includes savings of all resources due to the programs we recommend, including electricity savings, natural gas savings and water savings.

1.2 Net Present Value Savings from Energy Efficiency Programs in Florida

Our analysis includes savings of all resources due to the programs we recommend, including electricity savings, natural gas savings and water savings.

1.2.1 Results of Analysis Based on Using the TRC Test

Using the TRC Test, the magnitude of the total net present value dollar savings to ratepayers of the investor-owned utilities in Florida is ***hundreds of millions of dollars***. Table 1-4 below shows that the net present value savings to residential ratepayers of these electric utilities from the initial round of recommended programs is approximately $3.1 billion dollars in 2004 dollars

for measures installed during the first year of program implementation. Table 1-5 shows that net present value savings for commercial ratepayers of these utilities is over $940 million dollars. It is critical to note that our net present value savings estimates do incorporate program costs for program administration, marketing, incentives, and program evaluation. These costs are explicitly shown in Tables 1-4 and 1-5. Together, the net present value savings to residential and commercial customers of these electric utilities is approximately ***$4.0 billion*** in 2004 dollars. Furthermore, the TRC benefit/cost ratio of these initial programs is approximately 3.0 to 1 for residential programs and 2.7 to 1 for the commercial programs.

TABLE 1-4 - SUMMARY OF RESIDENTIAL PROGRAM BENEFITS, COSTS AND BENEFIT/COST RATIOS FOR ENERGY EFFICIENCY PROGRAMS FOR THE SERVICE AREAS OF FLORIDA INVESTOR-OWNED ELECTRIC UTILITIES (FROM INITIAL ROUND OF PROGRAMS)

Program Name	Net Present Value of Benefits	Net Present Value of Costs	Net Present Value of Savings to Ratepayers	TRC Benefit/Cost Ratio
Low Income Program	$630,304,909	$311,850,000	$318,454,909	2.02
Torchiere Trade-in	$6,230,373	$ 1,331,894	$ 4,898,479	4.68
Energy Star Homes	$2,503,566,874	$657,513,600	$1,846,053,274	3.81
Refrigerator Trade-in	$285,551,936	$12,348,013	$273,203,923	23.13
Room AC Trade-in	$11,685,019	$1,019,592	$10,665,427	11.46
Programmable Thermostats	$477,500,130	$24,938,550	$452,561,580	19.15
Energy Star Appliance & Lighting	$693,715,223	$ 199,524,152	$ 494,191,071	3.48
Sub-Total - All Residential Programs	$4,608,554,463	$ 1,208,525,800	$ 3,400,028,663	3.81
Other Program Costs (Staffing, etc.)		$ 302,131,450		
All Residential Programs (With Other Program Costs)	$4,608,554,463	$, 1,510,657,251	$ 3,097,897,213	3.05

TABLE 1-5 SUMMARY OF COMMERCIAL PROGRAM BENEFITS, COSTS AND BENEFIT/COST RATIOS FOR ENERGY EFFICIENCY PROGRAMS FOR THE SERVICE AREAS OF FLORIDA INVESTOR-OWNED ELECTRIC UTILITIES (FROM INITIAL ROUND OF PROGRAMS)

Program Name	Net Present Value of Benefits	Net Present Value of Costs	Net Present Value of Savings to Ratepayers	TRC Benefit/Cost Ratio
Commercial New Construction	$58,305,714	$17,286,360	$41,019,354	3.37
Non-Residential Retrofit	$1,081,537,088	$328,400,000	$753,137,088	3.29
Compressed Air Program	$229,615,693	$67,106,475	$162,509,218	3.42
High Efficiency Unitary HVAC	$116,577,716	$23,672,220	$92,905,496	4.92
Sub-Total - All Non-Residential Programs	$1,486,036,211	$436,465,055	$1,049,571,156	3.40
Other Program Costs (Staffing, etc.)		$109,116,264		
All Non-Residential Programs (With Other Program Costs)	$1,486,036,211	$545,581,319	$940,454,892	2.72

1.2.2 Results of Analysis Based on Using the Rate Impact Measure Test

Using the RIM Test, the magnitude of the total net present value dollar savings to ratepayers of the investor-owned utilities in Florida shrinks considerably. Table 1-6 below shows that the net present value savings to residential ratepayers of these electric utilities from the initial round of recommended programs that pass the RIM Test is approximately $533 million dollars in 2004 dollars for measures installed during the first year of program implementation. Table 1-7 shows that net present value savings for commercial ratepayers of these utilities is just over $26 million dollars for those programs that pass the RIM Test. It is critical to note that our net present value savings estimates do incorporate program costs for program administration, marketing, incentives, and program evaluation. These costs are included in the costs of each program shown in Tables 1-6 and 1-7. Using the RIM Test, the net present value savings to residential and commercial customers of these electric utilities is approximately ***$559 million*** in 2004 dollars. Furthermore, the RIM test benefit/cost ratio of these initial programs is 1.3 to 1 for residential and commercial programs.

TABLE 1-6 SUMMARY OF RESIDENTIAL PROGRAM BENEFITS, COSTS AND BENEFIT/COST RATIOS FOR FLORIDA INVESTOR OWNED UTILITIES' SERVICE AREAS

RATEPAYER IMPACT TEST

Program Name	Net Present Value of Benefits	Net Present Value of Costs	Net Present Value of Savings to Ratepayers	RIM Benefit/Cost Ratio
Low Income Program	$192,386,174	$511,100,954	$(318,714,780)	0.38
Torchiere Trade-in	$6,230,373	$10,912,632	$(4,682,259)	0.57
Energy Star Homes	$888,916,806	$750,481,987	$138,434,819	1.18
Refrigerator Trade-in	$285,551,936	$161,502,259	$124,049,677	1.77
Room AC Trade-in	$11,685,019	$5,629,981	$6,055,038	2.08
Programmable Thermostats	$477,500,130	$240,837,072	$236,663,058	1.98
Energy Star Appliance & Lighting	$583,320,320	$555,989,865	$27,330,456	1.05
All Residential Programs	$2,445,590,757	$2,236,454,749	$209,136,008	1.09
Residential Programs that Pass the RIM Test	$2,246,974,211	$1,714,441,163	$532,533,048	1.31

TABLE 1-7 SUMMARY OF COMMERCIAL PROGRAM BENEFITS. COSTS AND BENEFIT/COST RATIOS FOR FLORIDA INVESTOR OWNED UTILITIES' SERVICE AREAS

RATEPAYER IMPACT TEST

Program Name	Net Present Value of Benefits	Net Present Value of Costs	Net Present Value of Savings to Ratepayers	RIM Benefit/Cost Ratio
Commercial New Construction	$56,854,508	$74,133,405	($17,278,897)	0.77
Non-Residential Retrofit	$1,059,952,237	$1,212,411,557	($152,459,320)	0.87
Compressed Air Program	$229,615,693	$269,973,203	($40,357,510)	0.85
High Efficiency Unitary HVAC	$116,577,716	$90,111,894	$26,465,822	1.29
All Non-Residential Programs	$1,463,000,154	$1,646,630,059	($183,629,905)	0.89
All Non-Residential Programs that Pass the RIM Test	$116,577,716	$90,111,894	$26,465,822	1.29

Figures 1-8 and 1-9 show the comparison of cumulative MWH and MW savings for the DSM programs that pass the TRC Test versus those that pass the RIM Test. As you can see, if the TRC test is used as the mandatory test for DSM programs, mWh and MW savings would be significantly larger!

Figure 1-8 Comparison of Cumulative MWH Savings for DSM Programs That Pass the TRC Test Vs. the RIM Test

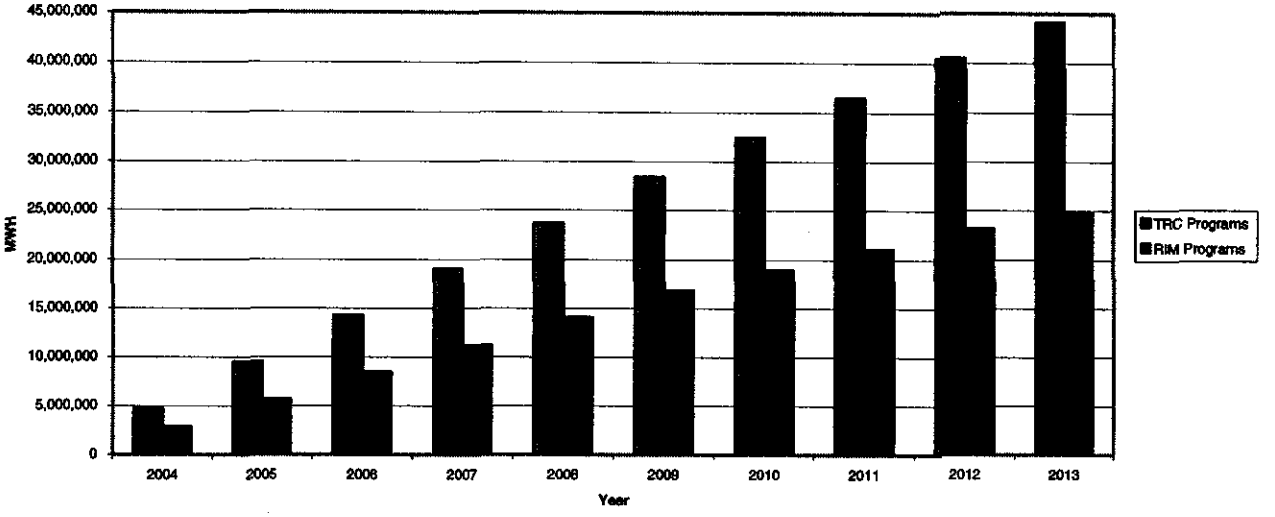
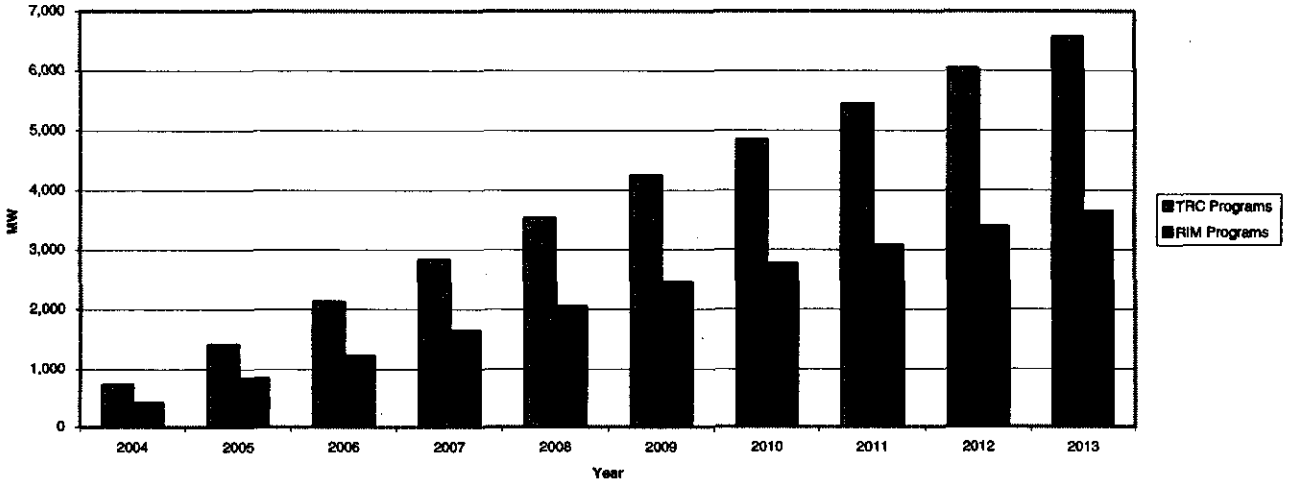


Figure 1-9 Comparison of Cumulative MW Savings for DSM Programs That Pass the TRC Test Vs. the RIM Test



1.3 Assumptions and Methodology

All of the assumptions used in this analysis for energy efficiency measure costs, energy savings, useful life and saturation are provided in Appendix A of this report. We have made every effort to tailor this analysis to the State of Florida, and we have used Florida specific input data wherever possible. Appendix A also provides detailed documentation of the data sources for efficiency measure data. The benefit/cost analysis was completed using a detailed spreadsheet computer model that has been used in several regulatory proceedings throughout the US. Appendix B provides a year-by-year illustration of the savings associated with the programs that passed the TRC Test and the programs that passed the RIM Test.

1.3.1 Estimate of long-run participation of 80% in programs over 10 years

The long run energy efficiency penetration estimate used in this study of 80% participation is based upon on an extensive literature search on this topic, reviews of all DSM technical potential studies conducted in the US over the past five years, and on extensive interviews with energy efficiency experts across North America. Listed below is detailed documentation for the basis for the 80% long-term penetration estimate with well-designed and well-executed programs.

The maximum achievable energy efficiency potential for the Florida IOU's residential and commercial sectors is a subset of the technical potential estimates. The term "maximum" refers to efficiency measure penetration, and means that ASE and SACE have based their estimates of efficiency potential on the maximum realistic penetration that can be achieved by 2013 (ten years from now). The term "maximum" does not apply to other factors used in developing these estimates, such as measure costs, measure energy savings or measure lives.

The maximum achievable potential estimate for energy efficiency defines the upper limit of savings from market interventions. For each sector, ASE and SACE developed the initial year (2004) and terminal year (2013) penetration rate that is likely to be achieved for groups of measures (space heating equipment, water heating equipment, etc.) by end use for the "naturally occurring scenario" and the "with aggressive programs and unlimited funding" scenario. ASE and SACE reviewed maximum penetration forecasts from other recent technical potential studies, actual penetration experience for programs operated by energy efficiency organizations across North America (NEEP, NYSERDA, NEEA, Wisconsin Focus on Energy, SWEEP, BPA, utilities, etc.), and penetration data from other sources (program evaluation reports, market progress reports, etc.) to estimate terminal penetration rates in 2013 for the maximum achievable scenario. In addition, they relied upon a survey of nationally recognized energy efficiency experts conducted by GDS (the ASE/SACE consultant) requesting their estimate of the maximum achievable potential for energy efficiency programs assuming implementation of aggressive programs and unlimited funding. The terminal year (2013) penetration estimates used in this study were based on the information gathered through this process (the literature search and the survey). Based on a thorough review of all of this information, ASE and SACE selected a maximum achievable penetration rate of **80 percent** by 2013 for the Florida IOUs' residential and commercial sectors.

Listed below in Table 1-8 is a summary of the information provided by energy efficiency experts across the U.S. in response to a request from the GDS Team to provide their expert judgment and a response to the following question: "Based on your experience and knowledge, and given the assumptions of implementation of very aggressive energy efficiency programs for the next 10 years and **unlimited funding**, what **maximum** penetration do you believe could be achieved for energy efficiency measures by the end of the next decade (ten years from now)?"

Table 1-8 Expert Input on Maximum Achievable Penetration Rate Over the Next Ten Years		
#	Efficiency Expert	Maximum Achievable Penetration Estimate Given Assumptions of Aggressive Programs and Unlimited Funding
1	Dr. Kenneth Keating - BPA	70% of energy efficiency technical potential
2	Fred Gordon-Energy Trust of Oregon	85% of stock for existing markets, on average. For new construction, 85% of turnover of floor space.
3	Raphael Friedman – Pacific Gas and Electric Company	With unlimited funding, you probably could save similar amounts to those shown in the California energy efficiency potential studies. The California Energy Surplus Study used 80% as a maximum penetration rate.
4	Janet Brandt – Wisconsin Energy Conservation Corporation	100% of the growth in energy and demand
5	Ernst Worrell - LBL	The maximum penetration rate for energy efficiency measures should be around 80% or slightly more, given aggressive programs and unlimited funding.
6	Tom Eckman – Northwest Power Planning Council (NWPPC)	Historically, the Northwest Power Planning Council has assumed that "on average" 85% of the "cost-effective" and "technically feasible" efficiency potential is achievable over a 20 year planning horizon. The empirical basis for this assumption is the experience in the Hood River Conservation project where Residential Weatherization measures where install free of charge (100% incentives) to participants. In the Hood River project about 90% of the household that were eligible participated and they installed roughly 90% of the technically feasible measures. The project only lasted two years so the NWPPC assumed that after 18 more years they would get most of the rest of the feasible measures installed. Assuming that programs could pay up to the full cost of all but the most expensive measures (since some amount of money must be used for program administration) and still remain cost-effective, the Council believes that a similar fraction of commercial and industrial customers would accept such offers. Over the past twenty of more years there were two periods when the Pacific Northwest Utilities and BPA were aggressively pursuing efficiency. During these periods the region "ramped" up efficiency acquisitions from less than 20 average MW to over 130 average MW in three to four years. If utilities and BPA had maintained

		this level of acquisition over a ten-year period, the region would have achieved about 70% of the technically feasible and cost-effective efficiency potential identified in the Council's Plans covering those same years. I might add that this level was achieved without offering 100% rebates -- the average incentive is probably in the range of 30 to 50% of measure incremental cost.
7	Nick Hall - TecMarket Works	Market research in the area of the diffusion cycle, the adoption path and the steps associated with the decision process leads me to know, without any uncertainty, that we can achieve a 80% to 90% market potential if we are allowed to design and operate a program to do so.
8	Michael Rufo – Quantum Consulting	The California Energy Surplus Study used 80% as a maximum achievable penetration rate for energy efficiency measures.

1.3.2 Development of Technical Potential Estimates for Energy Efficiency Measures by 2013

The total technical potential for each sector (residential, commercial, and industrial sectors) was developed from estimates of the technical potential of individual energy efficiency measures applicable to each sector (efficient lighting, efficient appliances, weatherization, home insulation, etc.). The general approach used in this study is identical to the approach used in the recent study completed in September 2002 for the State of California.

Core Equation

The core equation used to calculate the energy efficiency technical potential for each individual efficiency measure, by market segment, is shown below in Table 1-9 below (using a residential example):

Table 1-9 – Core Equation

Technical Potential of Efficient Measure	=	Total Number of Residential Households in State of Connecticut	*	Base Case Equipment End Use Intensity (kWh per home)	*	Base Case Factor	*	Remaining Factor	*	Convertible Factor	*	Savings Factor

where:

- Number of Households is the number of Florida residential electric customers in the market segment.
- Base-case equipment EUI is the electric energy used per customer per year by each base-case technology in each market segment. This is the consumption of the energy-using equipment that the efficient technology replaces or affects. For example, if the efficient measure were a CFL, the base EUI would be the annual kWh per household associated with all equivalent incandescent lamps in the home.
- Base Case factor is the fraction of the end use energy that is applicable for the efficient technology in a given market segment. For example, for a residential high-efficiency lighting technology, this would be the fraction of the energy use that is for incandescent lighting.
- Remaining factor is the fraction of applicable dwelling units or floor space that has not yet been converted to the efficient measure; that is, one minus the fraction of households or floor space that already have the energy-efficiency measure installed.
- Convertible factor is the fraction of the applicable dwelling units (or floor space) that is technically feasible for conversion to the efficient technology from an engineering perspective (e.g., it may not be possible to apply water pipe insulation in all homes due to access difficulties).
- Savings factor is the percentage reduction in energy consumption resulting from application of the efficient technology.

Technical potential for peak demand reduction is calculated analogously. An example calculation for residential efficient lighting using the core equation is shown in Table 1-10 below for the case of a typical 75-Watt incandescent lamp, which is replaced by a 19-Watt CFL in the residential sector.

Table 1-10 – Sample Calculation Of Technical Potential For Efficient Lighting Savings In The Residential Sector

Technical Potential of Efficient Measure	=	Total Number of Residential Households	*	Base Case Equipment End Use Intensity (kWh/home)	*	Base Case Factor	*	Remaining Factor	*	Convertible Factor	*	Savings Factor
1,000 GWH	=	5,877,100	*	1,942	*	100%	*	84%	*	100%	*	75%

Technical energy-efficiency potential is calculated in two steps. In the first step, all measures are treated independently; that is, the savings of each measure are not marginalized or otherwise adjusted for overlap between competing or synergistic measures. By treating measures independently, their relative economics are analyzed without making assumptions about the order or combinations in which they might be implemented in customer buildings. However, the total technical potential across measures cannot be estimated by summing the individual measure potentials directly because some savings would be double-counted. For example, the savings from a measure that reduces heat gain into a building, such as low-e windows, are partially dependent on other measures that affect the efficiency of the system being used to cool the building, such as high-efficiency central air conditioning; the more efficient the central air conditioning unit, the less energy saved from the low-e windows.

1.3.3 Penetration Rates from Other Efficiency Potential Studies

As noted above, the ASE/SACE team also reviewed maximum penetration rate assumptions used in other recently published energy efficiency potential studies. Table 1-11 below presents the information collected from these other studies. Finally, the ASE/SACE Team collected information on energy efficiency programs conducted during the past three decades where high penetration has been achieved. Examples of four such programs are listed below:

- In the State of Wisconsin, a gas DSM program to promote high efficiency gas furnaces attained a penetration rate of over 90%.[3]
- Electric water heater insulation programs – A paper presented at the Fourth National DSM Conference[4] by Richard Spellman of GDS found that residential electric water heater programs operated in New England by electric utilities had achieved very high penetration rates (70% to 80%) by 1989.
- Energy efficiency programs targeted at low-income customers of electric utilities have achieved very high penetration rates during the 1980's and 1990's.
- Residential weatherization and insulation programs implemented by electric and gas utilities in New England have achieved high participation rates.

[3] Hewitt, David.C., "The Elements of sustainability. Efficiency and Sustainability", paper presented at the 2000 ACEEE Summer Study on Energy Efficiency in Buildings. Washington: American Council on an Energy Efficient Economy. Pages. 6.179-6.190. The Wisconsin furnaces case study data can be found on pages 6.185-6.186.

[4] Spellman, Richard F., "Demand-Side Management Market Penetration: Modeling and Resource Planning Perspectives from Central Maine Power Company", presented at the Fourth National Conference on Utility DSM Programs, April 1989.

Table 1-11 - Maximum Achievable Penetration of Energy Efficiency Measures by 2012

Data Source	Penetration Rates 2003	Penetration Rates 2012	Notes
Source: The Achievable Potential for Electric Efficiency Savings in Maine			
CFL Saturation	10.0%	55.0%	
Energy Star Refrigerators	30.0%	85.0%	
High Efficiency Freezers	30.0%	85.0%	
High Efficiency Clothes Washers	70.0%	95.0%	
High Efficiency Room Air Conditioner	50.0%	95.0%	
High Efficiency Dishwashers	30.0%	85.0%	
Source: Vermont Department of Public Service - Electric And Economic Impacts of Maximum Achievable Statewide Efficiency Savings			
New Home		95.0%	Percent of homes treated, page 8, savings in 10th year.
Retrofit Measures		70.0%	Percent of homes treated, page 8, savings in 10th year.
Product Sales		75.0%	Percent of homes treated, page 8, savings in 10th year.
Source: California's Secret Energy Surplus: The Potential for Energy Efficiency			
All sectors		80.0%	
Source: The New Mother Lode: The Potential for More Efficient Electricity Use in the Southeast			
New Buildings		80.0%	Analysis was performed over the 2003 - 2020 period
Existing Buildings		100.0%	100% achieved by 2010.

2.0 ASE/SACE Energy Efficiency Program Recommendations

This Section of our Benefit/Cost Analysis update presents a description of the "top-ranked" energy efficiency programs that create the potential billions in net present value savings in the service areas of the Florida IOU. Table 2-1 highlights key information on each of the energy efficiency programs underlying the net present value savings, and Table 2-2 provides additional information on the positive impacts that each program may have on small and medium businesses in Florida. Following these tables, program descriptions for each proposed program are provided.

ASE and SACE have included Very High Priority and High Priority recommendations for demand-side management programs. These DSM programs address main drivers of electric load growth in the service areas of Florida investor-owned utilities and create the potential for the huge net present value savings. In addition, the programs that we have analyzed are cost effective and can provide hundreds of millions of dollars of net present value savings to ratepayers of Florida IOUs.

Very High Priority Programs

We recommend that highest priority should be given to DSM programs that mitigate load growth by adding energy efficient new buildings to the grid. Current design and construction practice shows that 30-50 percent energy use reductions beyond the current Florida building energy code can be achieved. Both these performance targets (30 and 50 percent) could be accommodated in the same programs for both sectors. These energy performance targets are consistent with proposed Federal tax incentives being considered by Congress. The Residential and Commercial New Construction programs are considered very high priority.

High Priority Programs

The next set of priority programs should address ratepayers who can least afford electricity These include low-income and senior citizen ratepayers for whom existing programs need to be expanded. Additionally, a high priority should be placed on retrofitting existing nonresidential (commercial and institutional) facilities that greatly influence system peak demand. The Low Income and Non-Residential Retrofit programs are considered high priority.

Additional Programs

There are a number of more targeted DSM programs that can offer cost-effective energy and demand savings to Florida ratepayers. The following programs address more focused equipment replacement within the residential and commercial sectors:

- ENERGY STAR Trade-in Programs
  - Refrigerator Trade-In
  - Room AC Trade-In
  - Torchiere Trade-In
- ENERGY STAR Appliance & Lighting Program
- Compressed Air Program
- High Efficiency Unitary HVAC Program
- ENERGY STAR Programmable Thermostat Program

Table 2-1 -ASE/SACE Recommendations for Energy Efficiency Programs for Florida Utilities				
DSM Program	**Target Market**	**Potential Program Supporters**	**Success Indicators**	**Foster Good Will Toward Energy Efficiency?**
Low Income Program	Low income households in Florida IOU service areas.	Piggyback on current weatherization program; consumer advocates; low income advocacy organizations.	According to recent research reports from Oak Ridge National Laboratory, programs nationwide achieve substantial savings	Excellent opportunity to foster good will for this hard to reach sector
Residential New Construction	New homes. Substantial savings can be achieved from the Energy Star Homes type program.	Building material suppliers; FL building code officials; homebuilders and related building contractors	Momentum nationwide and gaining in Florida; good code in place; TX reports 12 MW of savings at < $600/kW	Third party assessment of new homes; environmentally friendly and well publicized through EPA/DOE; improved indoor air quality
Refrigerator Trade-In Program	Existing households with old refrigerators. Pattern after Southern California Edison refrigerator turn-in program. Program goal is to get old refrigerators disconnected from the grid.	Appliance retailers and manufacturers *(very successful in NY)*	~$700 per kW saved reported by Southern CA Edison (SCE)	Environmentally sound; offers good PR and "community feel"
Room AC Trade-In Program	Existing households with old refrigerators. Pattern after other utilities and organizations that have room A/C turn-in program. Program goal is to get old and inefficient room air conditioners disconnected from the grid.	Appliance retailers and manufacturers	Reduces peak demand; recycling of units can be costly to implement	Environmentally sound; offers good PR, "community feel"
Torchiere Trade-In	Existing households with old refrigerators. Pattern after other utilities and organizations that have room A/C turn-in program. Program goal is to get old and inefficient room air conditioners disconnected from the grid.	Lighting manufacturers; colleges; multi-family housing; appliance retailers *(successful in NY)*	Substantial savings opportunity. NYSERDA conducted a successful series of events titled "Great Halogen Trade-In"	Health & safety improvement. Especially beneficial on college campuses and housing developments
ENERGY STAR Appliance & Lighting	Targeted at existing Homes. Pattern after other utilities and organizations that have such programs. Compact fluorescent light bulbs are one of the most cost effective measures.	Appliance and lighting manufacturers and retailers; water districts	Good momentum building with substantial potential for savings; significant market transformation reported in NEEP program	Clothes washers reduce water use; innovative campaigns offered by national ENERGY STAR program
ENERGY STAR Programmable Thermostat Program	Targeted at existing homes that do not have programmable thermostats. Program design pays rebate to residential customers who install the programmable thermostat themselves.	Retailers and distributors of programmable thermostats and HVAC contractors.	KeySpan Energy Delivery has operated a very successful and cost effective programmable theromstat program for almost a decade.	Added convenience and now more "user-friendly".
Commercial New Construction	New buildings.	Building material suppliers; FL building code officials; architects and engineers	Good code in place; very cost effective savings potential (National Grid reports TRC of 2.8)	More sustainable and environmentally sensitive buildings; improved indoor air quality
Commercial Retrofit	Existing commercial buildings	Equipment manufacturers; HVAC and electrical contractors, property management firms	High potential for savings – especially chiller replacements(National Grid reports TRC of 2.05)	Reduce commercial space utility use for renters and property managers; successful national program in place
Compressed Air Program	Existing commercial buildings	Control manufacturers; property management firms	High savings potential – PG&E reports >300 MWh saved per	"Value-added" service to businesses
High Efficiency Unitary HVAC	Existing commercial buildings	HVAC contractors and equipment manufacturers *(very successful in NE)*	Cool Choice (NE multi-state program) reports significant savings	

2.1 DSM Program's Potential Effects on Small and Medium Businesses in Florida

Over the past three decades, utility ratepayer-funded demand-side management programs have become a central component of public policy regarding energy efficiency in the United States. These programs have transitioned from focusing on project-specific energy savings to transforming key markets so that energy efficient products and services gain increasing market share. It is this market transformation aspect of DSM programs that will most benefit the residential and small and medium business sectors in Florida. Table 2-2 below provides a brief summary of the benefits that the proposed DSM programs can provide to small and medium businesses across the State of Florida.

Table 2-2 – ASE/SACE Proposed DSM Programs

DSM Program	Businesses Directly Impacted	Nature of DSM Program Influence
Residential New Construction *(ENERGY STAR Homes)*	Homebuilders	Marketing support, training, increased margins
	Building material suppliers	Increased sales of energy related products (insulation, house-wrap), increased margins (higher grade windows)
	Lumberyards	Marketing support, promotional opportunities by hosting training workshops and other related activities
Refrigerator and Room AC Trade-In	Appliance retailers	Marketing and sales support through coupon redemption
	Appliance recyclers	Opportunities for large-scale recycling effort
Torchiere Trade-In	Lighting retailers	Marketing and sales support through coupon redemption, increased margins through promotion of higher quality products
ENERGY STAR Appliance & Lighting	Appliance and lighting retailers	Marketing support, increased sales for participating retailers, increased margins on higher price-point products
	Hardware stores and Supermarkets	Marketing support, promotional opportunities relating to sales of compact fluorescent bulb (CFL) sales
	Electricians	Potential opportunities for "qualified vendor" list associated with lighting fixture installations
Commercial New Construction	Architects and Engineers	New business opportunities for energy efficient designs, potentially develop a "qualified vendor" list
	HVAC and Electrical Contractors	Increased margins on higher quality equipment, potentially develop a "qualified vendor" list
	Energy Service Professionals & Companies	Large new business potential for energy-related building professionals
Non-Residential Retrofit	HVAC Sales & Service Contractors and Electrical Contractors	Increased margins on higher quality equipment, new business opportunities on preventative maintenance contracts and lighting retrofit projects, potentially develop a "qualified vendor" list
	Energy Service Professionals & Companies	Large new business potential for energy-related building professionals

	Property Management Firms and Building Owners	Reduced operating costs through cost-effective energy saving projects, design support and reduced equipment costs
Compressed Air Program	HVAC Control Contractors	New business opportunities on preventative maintenance contracts, potentially develop a "qualified vendor" list
	Property Management Firms and Building Owners	Reduced operating costs through cost-effective energy saving projects, design support and reduced equipment costs
High Efficiency Unitary HVAC	HVAC Contractors and Suppliers	Marketing support, increased margins on higher quality equipment
	Property Management Firms and Building Owners	Reduced costs for new high efficiency equipment, reduced operating costs through lower energy bills

2.2 Low Income Program

Approximately 33% of households in Florida are eligible for LIHEAP assistance. Here are our recommendations for an expanded low-income energy efficiency program for low-income households in the service areas of Florida investor-owned electric utilities.

Target Market: Existing single- and multi-family customers who are currently eligible for either: 1) weatherization services under federal DOE guidelines, or 2) LIHEAP. Generally, these customers are characterized by the large percentage of their income required to pay their energy bill.

Program Marketing: Initial program marketing should continue to be directly coordinated with the ongoing outreach efforts being conducted by the State of Florida. In addition, an element of the marketing plan should include an outreach effort to notify customers of the availability and benefits of low-income rates and energy efficiency services. This can include contacting, by mail and/or telephone, customers subscribing to the discounted low-income rate.

Target End Uses, Recommended Technologies, and Financial Incentives: The current state of Florida low-income weatherization program is comprehensive and includes many energy efficiency measures. According to the Program's web site, Florida's Weatherization Assistance Program (WAP) and the Weatherization Assistance Program/Low-Income Home

Energy Assistance Program (Weatherization WAP-LIHEAP) funds community action agencies, local governments, Indian tribes and non-profit agencies to implement weatherization measures in low-income homes in all counties, including: insulation, weather stripping, water heater wraps and reduction of air infiltration. Furnaces and air conditioning systems may also be repaired.

We recommend that the Florida investor-owned electric utilities expand their existing energy efficiency efforts targeted at low-income households. This expanded program would provide additional funding that would allow more extensive services to more low-income customers, as well as providing critical training and materials associated with the installation of wall insulation. As the program is expanded, other training opportunities may be considered, focusing on such topics as advanced energy auditing, blower door testing, and metering/monitoring of refrigerators.

Delivery Mechanism: This program would be delivered through the existing network of weatherization assistance agencies, as coordinated by the State of Florida. Administrative oversight of the program could be conducted by utility staff or a third-party contractor (including a Southeast Energy Efficiency Alliance ("SEEA"), if appropriate; SEEA is an independent nonprofit corporation that administers market transformation energy efficiency programs).

2.3 Residential New Construction Program

The proposed residential new construction program would combine or simply accommodate the technical features of the ENERGY STAR® Homes program for the 30 percent level. The program would include the 30 percent energy performance improvement requirement and include additional features such as full ENERGY STAR appliances, higher cooling equipment efficiencies and possibly solar control devices.

Target Market: Builders, customers and trade allies involved in construction of single and multi-family homes.

Program Marketing: An initial step in marketing should include the buy-in of the major homebuilder's associations in the area. General marketing would include direct builder outreach, targeted mailings, public relations activities, home and trade show exhibits, billboards, radio and print ads, trade journal ads, open-house tours, builder and homebuyer seminars, and consumer brochures. The program would be co-branded with the national ENERGY STAR Homes effort.

Target End Uses, Recommended Technologies, and Financial Incentives:

This program would target all end-uses within the home such as building shell measures, mechanical ventilation, appliances, heating and water heating equipment, and lighting fixtures.

Program participants would be offered an ENERGY STAR plan review, including a preconstruction meeting, post construction inspection and blower door test, and Home Energy Rating System (HERS) certification for ENERGY STAR-qualifying homes. A small application fee for these services would be refunded once the home is certified as an ENERGYSTAR Home. Recommended technologies are ENERGY STAR heating systems, lighting, appliances, and windows, increased levels of insulation, and improved construction techniques to minimize air leakage, infiltration and heat loss. Builders and developers are offered a cash incentive for each single-family homes and multi-family units completed. In addition, additional incentives should be considered for program-compliant mechanical ventilation. Free HVAC commissioning service for ducted space conditioning systems and free code compliance documentation should be included. Scaled incentives can also be considered for homes that achieve higher HERS scores.

Delivery Mechanism: The program can be delivered either through direct utility personnel management of certified HERS raters or the hiring of a third-party management contractor. In the early stages of the program, it may be more cost-effective to hire a management contractor with direct ties to HERS raters and/or the residential construction industry.

2.4 ENERGY STAR Trade-in Programs

Residential "trade-in" programs are designed to promote the use of energy efficient lighting and/or appliances while actively retiring the old, inefficient equipment. This program design has proved to be effective in removing inefficient and out-dated electric equipment and appliances from the residential market. Included in the program design below are descriptions of trade-in programs focused on refrigerators, room air conditioners, and halogen torchiere lamps.

Target Market: All residential customers of the Florida IOUs are targeted for this initiative. In addition, appliance and lighting retailers are also a targeted segment for this program.

Program Marketing: Marketing activities for these programs must be carefully implemented to avoid the potential for over-subscription. A multi-step marketing approach is suggested, with advancement to the next step being made only when it becomes obvious that staying at an earlier step will not result in achieving the targeted levels of participation.

Step 1 - Market through Low Income Program initiative, identifying and replacing inefficient refrigerators and room air conditioners, and halogen torchieres with ENERGY STAR-rated models. Additional swaps through word-of-mouth referrals would be addressed also.

Step 2 - Targeted bill stuffers to residential customers with high use (e.g., > 15,000 kWh/year) and low -income customers

Step 3 - Residential customer-wide bill stuffer

Step 4 - Locally advertised Trade-In event(s) targeted to all residential customers. In all cases, removed measures will be disposed of in a safe and environmentally appropriate manner and will not be available for resale.

Target End Uses, Recommended Technologies, and Financial Incentives: For halogen torchieres, the incentive received for turning in a halogen fixture can cover the entire cost of the ENERGY STAR-labeled torchiere or a portion of the cost through a coupon. For refrigerators and room air conditioners, customers would receive a coupon toward the purchase of an ENERGY STAR-labeled unit upon turn-in of their old appliance. Alternatively, an incentive could include a 3-pack of energy efficient light bulbs or a similar set of energy saving items. Customers are typically limited to a single appliance and up to two torchiere trade-ins per account number. Additional product(s) would be made available for purchase through the proposed Lighting and Appliances Initiative and rebate forms would be provided where applicable.

Delivery Mechanism: The most successful programs of this type have included a third-party contractor that can administer the program and appropriately dispose of the used equipment. It is recommended that the storage and disposal of the used equipment be a key factor in choosing an implementation contractor(s) for these programs.

2.5 ENERGY STAR Appliance & Lighting Program

This program promotes the market acceptance of high-efficiency residential appliances and lighting products. The objective is to transform the market by creating a sustained demand for high efficiency appliances and lighting that use substantially less energy, and water for clothes washers, than standard models. Initial focus for similar programs has been on the ENERGY STAR clothes washers with high levels of success. In addition, special promotions are often included that are linked to either seasonal (targeting ENERGY STAR air conditioners) or other (exterior CFLs during National Night Out campaign) events. These targeted promotions can be very effective at raising awareness and good will toward energy efficiency. This program would also include a component to pay rebates to residential customers who purchase and install ENERGY STAR labeled programmable thermostats.

Target Market: All residential customers are targeted for this initiative. In addition, appliance and lighting retailers are also a targeted segment for this program.

Program Marketing: Marketing activities for ENERGY STAR products would include retail marketing and point-of-purchase displays, and cooperative media advertising. A key promotional activity is the training and support of retail managers and sales staff. Manufacturers and retailers would be recruited for promotional initiatives. Coordination with other regional ENERGY STAR initiatives (i.e., ENERGY STAR Homes) and the national ENERGY STAR marketing campaign will be critically important especially in the early stages of the program.

Target End Uses, Recommended Technologies, and Financial Incentives: The ENERGY STAR appliance element of this program will seek to reduce the amount of water and electricity used in homes for clothes washing, refrigeration, automatic dishwashing, consumer electronics, dehumidification and air conditioning. The technologies are ENERGY STAR clothes washers,

refrigerators, dishwashers, programmable thermostats, consumer electronics, dehumidifiers, and room air conditioners. Rebates are typically offered for programmable thermostats, clothes washers and room air conditioners.

Recommended ENERGY STAR lighting technologies include products such as compact fluorescent light bulbs (CFLs), fixtures (exterior, interior, ceiling fans with lights), table lamps, and fluorescent torchieres. Rebates are typically offered for all technologies and range from $2 to $8 for CFLs and from $10 to $20 for fixtures.

Delivery Mechanism: Due to the breadth of this type of program, multiple outside contractors may be required for implementation. These would include: (1) a retail outreach contractor to recruit and train retailers to participate, place point-of-purchase materials and instant rebate coupons in their stores, conduct product labeling and special promotions, and act as a liaison between the utilities and the retailers; (2) a fulfillment contractor to staff a toll-free line, and process instant rebate coupons and rebate applications as needed; and (3) a marketing vendor to suggest, design and procure media for marketing campaigns.

2.6 Commercial New Construction Program

The technical criteria for the 30 percent level would be taken from the New Building Institute's E-Benchmark specification and from ASHRAE's forthcoming Advanced Energy Design Guide for Small Office Buildings. A prescriptive approach is possible at this level. Achieving the 50 percent reduction target would be done on a performance basis relative to the Florida energy code.

Target Market: Existing or new commercial, government, or institutional customers that are planning a new construction, major renovation or failed equipment replacement project. In

addition, this program should focus on promoting high performance schools to any communities involved in the new construction and/or major renovation of a K-12 public school.

Program Marketing: An initial step in marketing should include the buy-in of the major commercial design and construction industry associations in the area (i.e., local chapters of AIA and ASHRAE). Direct marketing to architects, engineers, developers and customers to educate and encourage adoption of new design features and equipment selection in order to promote efficient energy usage in commercial, government, and institutional buildings. This might include direct customer outreach through the utility's existing customer service engineers, posting of program information on utility web site, targeted mailings, trade show exhibits, billboards, trade journal ads, and brochures. Independent, third party contractors and energy service companies may also provide marketing support as part of their own business development activities.

Target End Uses, Recommended Technologies, and Financial Incentives:

As a performance-based program, all commercial end uses are included, such as lighting, drive power, compressed air, refrigeration, and HVAC. Eligible technologies might include efficient lamp technologies, lighting fixtures and controls, efficient motor drive systems, efficient unitary HVAC equipment, and energy management systems. Customer incentives would be based on the level of savings achieved and are typically calculated on either a $/kWh or $/kW saved basis.

In addition, prescriptive customer incentives can be included based on incremental equipment and labor costs as compared to baseline technology assumptions (*i.e.*, the efficiency rating/ energy usage associated with the "standard" piece of equipment or standard practice that would have been used absent the program). Prescriptive elements for various technologies (*i.e.*,

motors, HVAC) would typically specify a range of incentives for eligible measures. For budget management purposes, and to ensure maximum customer participation, spending-per-customer should be capped at a % of the total program incentive budget (25% is typical).

Delivery Mechanism: Direct outreach for this program can be directly linked to the utility's existing C&I customer service engineers' current responsibilities, with a dedicated program manager overseeing all program activities.

2.7 Non-Residential Retrofit Program

A general purpose program can accommodate sophisticated retrofits by energy service companies ("ESCOs") at large institutional facilities as well as simple lighting retrofits for retail tenants. Such an approach also accommodates potential federal tax incentives should Congress pass them.

Target Market: Commercial, institutional, and municipal customers looking to replace existing, operational equipment with more energy efficient alternatives.

Program Marketing: Direct marketing to commercial, government, or institutional customers to educate and encourage adoption of energy efficient equipment selection on a pro-active basis. This might include direct customer outreach through the utility's existing customer service engineers, posting of program information on utility web site, targeted mailings, trade show exhibits, billboards, trade journal ads, and brochures. Independent, third party contractors and energy service companies may also provide marketing support as part of their own business development activities.

Target End Uses, Recommended Technologies, and Financial Incentives:

Comprehensive retrofits for commercial and institutional facilities can be effective in reducing peak demand and sector kWh usage. Lighting and air-conditioning usage profiles usually track the system peak demand profile quite well. The end-use targets would be primarily lighting and HVAC. Efficiency measures and packages of measures should be custom tailored to a particular customer facility, rather than being based on specific components such as certain light fixtures. A standard incentive would be established on a per kW and per kWh saved basis simplifying incentive applications and focusing on "whole building" or "system-level" performance. Often the utility incentives are different for lighting and HVAC measures.

Delivery Mechanism: Direct outreach for this program can be directly linked to the utility's existing C&I customer service engineers' current responsibilities, with a dedicated program manager overseeing all program activities.

2.8 Compressed Air Program

The compressed air program would offer the customer an assessment of their compressed air system. This initiative would be directly linked with the DOE-sponsored National Compressed Air Challenge (CAC), which is a broad based collaborative of government agencies, compressed air specialists, equipment manufacturers, end-use customers, and utilities. The objective of the CAC is to promote the substantial energy savings available by means of a comprehensive systems approach to compressed air system design and operation.

Target Market: This initiative will target commercial, institutional, and municipal users of compressed air systems, vendors of compressed air systems, and energy engineers who analyze compressed air systems.

Program Marketing: The national Compressed Air Challenge organization provides advertising and marketing materials for the program. This material would be primary source for marketing and promotional material.

Target End Uses, Recommended Technologies, and Financial Incentives: The national Compressed Air Challenge offers a Fundamentals and Advanced workshop. The Fundamentals workshop is a one-day introduction to compressed air systems and the opportunities that exist to improve the system's reliability, air quality and operating procedures, while achieving significant energy savings. The Advanced workshop is a two-day in-depth workshop that evaluates the opportunities for system improvements and savings. In conjunction with the Department of Energy, an AIRMaster Certified Specialist workshop will be offered to service providers. AIRMaster is a high-level analytic software tool capable of assessing the cost effectiveness of a wide variety of equipment and operating improvements for compressed air systems. Through these trainings, the program will promote selection of high efficient compressed air systems and also promote proper design, maintenance and optimization of these systems.

Delivery Mechanism: On a national level, Compressed Air Challenge sets the standards for the training workshops. On a regional level, the utility, or group of utilities, would provide the venue, space, speakers, agendas, content, and logistics for the variety of workshops to be offered.

2.9 High Efficiency Unitary HVAC Program

This is a marketing-based program for unitary commercial air conditioners and heat pumps meeting the efficiency specifications established by the Consortium for Energy Efficiency. A full range of marketing tactics would be used, including education of HVAC contractors, personal outreach and support for contractors, customer awareness marketing, and customer rebates for qualifying equipment. All of these methods contribute to the program's goal of market transformation. Cool Choice, offered by a consortium of Northeast utilities, offers incentives that cover 100% of the incremental cost so there is no additional cost for participants.

Target Market: This program would be promoted to equipment suppliers and contractors in the region as well as directly to customers. Existing or new commercial, government, or institutional customers that use packaged HVAC equipment.

Program Marketing: The Cool Choice vendor, hired by the Cool Choice participating utilities, markets the program to the equipment suppliers and contractors via one-on-one meetings, direct mail, and advertising in trade journals. Customers also benefit from the marketing materials and advertising created by the Cool Choice vendors and participating utilities.

Target End Uses, Recommended Technologies, and Financial Incentives:

The targeted end use for this program is HVAC for the commercial, government, and institutional market. The program would offer financial incentives for the purchase of HVAC equipment (unitary packaged and split air conditioner and heat pump systems) up to 30 tons at the CEE Tier 1 and 2 level (Tier 1 & 2 are specification by the Consortium for Energy Efficiency for efficiency levels of unitary HVAC equipment). In addition, the program could offer rebates for dual enthalpy controls for economizers on qualifying new HVAC units rebated through the program. Rebates are typically offered on a per ton bases, depending on the size of the unit, with a single incentive level offered for the dual enthalpy economizer controls. The rebates

should be designed to cover, on average, either all or some percentage of the incremental cost for unitary equipment. The rebates for this program would also be available through the proposed new construction and retrofit programs.

Delivery Mechanism: A third-party contractor should be hired to market the program and distribute rebate forms to HVAC suppliers and contractor. This contractor would also complete rebate forms and track progress of the program. The utility would then primarily market the program to their customers, promoting energy efficient unitary HVAC technologies and the availability of rebates. The utility would also be responsible for performing technical reviews of rebate applications, process rebates and track program progress. Alternatively, these responsibilities could be contracted to a third-party vendor.

3.0 Gaps in Energy Efficiency Program Delivery in Florida

This section of the report summarizes the Demand-Side Management (DSM) Programs available to commercial and residential electric and gas utility customers in Florida, and identifies where gaps in program coverage exist. Demand-side management programs provide incentives and rebates to enable customers to save money on their electric bills and become more energy efficient. These programs can vary from providing incentives for the weatherization of one's home to offering rebates for the purchase of energy efficient products, such as an ENERGY STAR certified air conditioner. The demand-side management programs of the following Florida electric utilities were reviewed:

- Florida Power and Light (FPL)
- Orlando Utility Commission (OUC)
- Florida Public Utilities Company (FPUC)
- JEA
- Tampa Electric Company (TEC)
- Progress Energy Florida (PEF)
- Gulf Power Company (GPC)

The demand-side management programs offered to commercial and residential electric/gas customers by these utilities vary by a wide-margin: some utilities offer a wide-spectrum of programs, whereas others do not. This section of our report identifies the programs available from each of the utilities listed above. A summary demand-side management program matrix is provided on the next page. Many gaps exist in the matrix and it is our goal to identify ways to close the gaps and make it easier for commercial and residential electric and gas customers of Florida's utilities to become more energy efficient and to save money in the process. There are several observations that can be drawn from the data presented in Table 3-1:

- Two of the electric utilities do not offer a significant number of energy efficiency programs (Gulf Power and Jacksonville Electric Authority)

- Only two of the seven utilities offer an energy efficiency program for residential new construction
- None of the seven utilities offers an energy efficiency program for residential efficient lighting
- Four of the utilities do not offer an energy efficiency program for electric water heaters
- The number and types of programs offered differs significantly from utility to utility. It is not clear why some utilities offer almost no energy efficiency programs.
- It is clear that, although some of the electric utilities in Florida do offer energy efficiency programs, **there is a vast amount of cost effective energy efficiency savings that remains to be tapped**.

TABLE 3-1: Energy Efficiency Programs Offered by Electric Utilities in Florida

		FPL	OUC	FPUC	GPC	JEA	TEC	PEF
Lighting	Res.							
Duct	Res.	X	X				X	X
Insulation	Res.	X	X				X	X
Energy Mgmt.	Res.	X					X	X
Energy Audits	Res.	X	X	X			X	X
Cooling (including heat pumps)	Res.	X	X				X	X
Appliances	Res.			X				
Water Heaters	Res.			X	X[8]			X
New Construction	Res.			X			X	
Weatherization	Res.		X					
Stand-By Generator								
Alternative Energy	Res.					Solar		
Other Incentives	Res.		Low-income weatherization assistance	Space Conditioning11				

[5] Included in "Cash Flow Neutral Billing Solution" program
[6] Included in A/C program
[7] Windows included
[8] Gas to Electric Replacement
9 Included in "Cash Flow Neutral Billing Solution" program

10 Switch from Electric to Gas
11 Switch from Electric to Gas

4.0 The Total Resource Cost Test is the Correct DSM Test for Florida

The Total Resource Cost Test (TRC) is the correct cost effectiveness test for Georgia. It is clear that the amount of energy efficiency that will be included in the conservation goals for each utility depends on which DSM benefit/cost test or tests are adopted by the Florida Commission. If the Commission selects the Total Resource Cost benefit/cost test, ratepayers of Florida utilities could receive vastly higher energy and dollar savings that if the Commission selects goals based on the RIM Test. Unlike the Rate Impact Measure ("RIM") Test, the TRC Test places demand-side and supply-side options on a level playing field. If it is less expensive to save a kilowatt-hour ("kWh") with DSM than to generate a kWh on the supply-side, then the DSM option is the least cost option and should be selected. Using the TRC Test allows us to compare the cost of DSM options with the costs of planned supply side options such as generation, transmission and distribution facilities. The TRC Test allows DSM resources to be part of integrated planning, while the RIM Test does not allow DSM resources to be adequately integrated into the planning process.[10]

The time has come to discontinue use of the RIM Test as a mandatory test!

The RIM Test is the **WRONG** test for Florida for the following thirteen reasons:

- The California Standard Practice Manual (published by the California PUC) notes that **the RIM Test is the weakest of all of the DSM benefit/cost tests**. The October 2001 CPUC Manual states that "Results of the RIM test are probably **less certain** than those of other tests because the test is sensitive to the differences between long-term projections of marginal costs and long-term projections of rates, two cost streams that are difficult to quantify with certainty."

[10] The Georgia Power IRP filing finds that almost 100 DSM measures are cost effective and pass the TRC Test today. But, as GPC witnesses testified in the IRP hearings, Georgia Power does not plan to pursue any of these very cost effective DSM options. The RIM test is a major barrier to integrated resource planning in Georgia.

- **The RIM Test is an "extreme" screening test.** As demonstrated by the energy efficiency program screening done by ASE and SACE, several cost effective energy efficiency programs will fail the RIM test, even if the efficiency can be gained at "zero" cost. Furthermore, for example, if a philanthropist gave a donation of millions of dollars to Florida electric utilities to run "free" DSM programs, the Florida utilities would have to return the most of the money to the philanthropist because even "free" programs can fail the RIM test.
- **The RIM Test prevents "integrated resource planning".** The IRP process is designed to provide the most efficient and reliable electricity system, and energy efficiency is an important resource that must be considered. Use of the RIM Test prevents supply-side and demand-side resources from being integrated into a balanced portfolio of resources to meet customer needs.
- **The RIM test is not a test of economic efficiency**. The RIM test examines the equity or fairness of a DSM program, and whether electric rates will increase to participants and non-participants due to the concern that electric rates might have to increase to recover lost revenues. The Total Resource Cost Test, on the other hand, measures the economic efficiency of a DSM program and whether it is less expensive than an alternative supply-side resource.
- **Lost revenues are a myth**. The RIM Test considers lost revenues as a cost. Lost revenues are not "true economic costs", and given the rate of load growth in the service areas of Florida utilities, such lost revenues are not likely to occur. In addition, the RIM test ignores the significant impacts of "found revenues" due to the economic growth created from energy efficiency programs.
- **The RIM test is never applied to supply-side investments**. The Florida electric utilities do not apply the RIM Test to any other investments that they make (like expenditures planned for new T&D investments). Thus the RIM test is clearly

discriminatory and arbitrary. Furthermore, the rate impacts of supply-side investments clearly dwarf the rate impacts of DSM programs.

- **Load building programs pass the RIM test, but energy efficiency programs often do not.** Supporting the RIM test supports policies that will encourage the excessive and unwise use of electricity. In fact, in the recent Georgia IRP hearings, witnesses from Georgia Power Company stated under cross examination that programs to tear insulation out of attics in Georgia homes or to tear insulation jackets off electric water heaters would pass the RIM test. Furthermore, Georgia Power Company witnesses further stated under cross-examination that the popular and effective ENERGY STAR Homes program of the US Environmental Protection Agency would be "harmful" to Georgia ratepayers because of the RIM test. Clearly this is a counter-intuitive result that shows why the RIM Test is a nonsensical benefit/cost test.
- **Many factors exist to eliminate or counterbalance lost revenues**. May utilities conduct load-building programs (such as programs to encourage homeowners to install HVAC systems fueled by electricity) that will offset load reductions from DSM programs, and thus these "found revenues" can mitigate any small rate impacts associated with energy efficiency programs. Second, the service areas of Florida utilities are growing rapidly, as indicated by recent publicly available data on historical load growth of Florida utilities from FERC Form 1. This natural load growth will also help to mitigate the adverse rate impacts of conservation programs. Fourth, several of the Florida utilities are continuing to conduct residential load management programs, which can also help mitigate any small rate impacts from energy efficiency programs. Even GPC stated in response to a data request in a recent Georgia IRP docket that the vast majority of rate impacts in the Georgia Power IRP are due to supply-side investments, not DSM programs.
- **Rate impacts of DSM programs are negligible**. A study conducted in 1994 by the American Council for an Energy Efficient Economy (ACEEE) concluded that the rate

impacts caused by utility DSM programs are very minor.[11] In addition, a follow-up study published by Oak Ridge National Laboratory in November 1994 concluded that the rate impacts of DSM programs are small both in absolute terms and relative to the many other factors that affect electricity prices.[12]

- **The RIM Test ignores important benefits of DSM programs**. The RIM Test formula ignores key economic and environmental benefits of DSM programs, such as job creation due to DSM programs, reduced use of water for power plants, reduced use of natural gas in homes and businesses, the value of reduced air emissions, and the value of increased competitiveness of Georgia businesses.
- **Use of the RIM Test encourages load-building programs.** Such load building programs exacerbate electric load growth and air emission problems and increase customer electric bills. Use of the RIM test is inconsistent with efforts of Federal and State agencies to curb air emissions problems in the metro Atlanta region.
- **Use of the RIM Test ignores the needs of low income and senior citizen customers.** Energy efficiency programs for low income and senior citizen customers fail the RIM Test. Clearly these two residential customer segments have unique needs. Thus the RIM Test alone is not a useful public policy tool, and it stands in the way of true integrated resource planning.
- **The Florida Commission is one of only a handful of Commissions in the country that rely on the RIM Test as a mandatory test for screening of DSM programs.** As a result, Florida investor-owned utilities lag far behind their counterparts in other States when it comes to saving electricity and lowering customers' bills. The only other state regulatory commissions that use the RIM Test as a mandatory test are Arkansas and South Carolina.

[11] Nadel, Steven; Pye, Miriam, "Rate Impacts of DSM Programs: Looking Past the Rhetoric, American Council for an Energy-Efficient Economy, Washington, DC, 1994.
[12] Hirst, Eric; Hadley, Stan, "Price Impacts of Electric-Utility DSM Programs", Oak Ridge National Laboratory, November 1994, pages 29-30.

- The California Standard Practice Manual (published by the California PUC) notes that **the RIM Test is the weakest of all of the DSM benefit/cost tests**. The October 2001 Manual states that "Results of the RIM test are probably less certain than those of other tests because the test is sensitive to the differences between long-term projections of marginal costs and long-term projections of rates, two cost streams that are difficult to quantify with certainty."

APPENDIX A

APPENDIX A - SOURCES AND REFERENCES FOR ASSUMPTIONS FOR RESIDENTIAL DSM PROGRAMS AND MEASURES
July 2004

1	2	3	4	5	6	7	8	9	10	11
Program #	Energy Efficiency Program/Measure Description	Definition of Unit	Incremental ~~Equipment~~ Cost for High Efficiency Measure	Extra Labor Cost (if any beyond amt in col. 4)	Total Installed Cost (Materials + Labor)	Cost Type: Incremental = 0 Full = 1	Measure Life	Annual kWh Savings Per Unit Installed	Annual kW Savings Per Unit Installed	Annual MMBtu (Natural Gas) Savings Per Unit Installed Where Applicable
1	Low Income Program	Low income home	$2,500.00	$0.00	$2,500.00	1	20	1,582.0	0.36119	42
2	Torchiere Turn-in Program	One torchiere	$20.00	$0.00	$20.00	0	6.8	139.0	0.03174	0
3	Room Air Conditioner Trade In (The main purpose of this program is to take old, inefficient room air conditioners, off the grid)	One Room A/C	$50.00	$0.00	$50.00	0	12	287.0	0.22300	0
4	Refrigerator Trade In (The main purpose of this program is to take old, inefficient refrigerators, off the electric grid)	One Refrigerator	$35.00	$0.00	$35.00	0	19	1,946.0	0.44429	0
5	Thermostat Rebate Program (customer must have central air conditioning system to be eligible for this program)	Two Thermostats Per Home to control 2 Central AC units	$100.00	$0.00	$100.00	0	16	1,257.0	0.50800	0
6	3 - 60 Watt CFLs	3 - 60 watt bulbs	$8.91	$0.00	$8.91	0	9	151.1	0.13800	0
7	3 - 75 Watt CFLs	3 - 75 watt bulbs	$20.91	$0.00	$20.91	0	9	184.0	0.16800	0
8	3 - 100 Watt CFLs	3 - 100 watt bulbs	$23.91	$0.00	$23.91	0	9	252.9	0.21900	0
9	Energy Star Dishwashers	One Dishwasher	$204.00	$0.00	$204.00	0	13	156.0	0.01500	0
10	Energy Star Clothes Washers	One Clothes Washer	$150.00	$0.00	$150.00	0	13	732.0	0.13800	0
11	Energy Star Consumer Electronics	Electronics	$10.00	$0.00	$10.00	0	10	213.7	0.04879	0
12	Energy Star Lighting Fixtures	One Lighting Fixture	$250.00	$0.00	$250.00	1	9	896.0	0.18600	0
13	Energy Star Table Lamps	3 - Table Lamps	$9.00	$0.00	$9.00	0	9	151.0	0.18600	0
14A	Energy Star Homes Program	New Home-Gas Space Heat	$3,000.00	$0.00	$3,000.00	1	35	1,910.0	0.43607	56
14B	Energy Star Homes Program	New Home-Electric Space Heat	$3,000.00	$0.00	$3,000.00	1	35	2,678.0	1.08200	0

Notes:

1. This calculation assumes that the maximum achievable potential savings are attained over a ten-year period, that existing standard efficiency units are replaced on burn-out, and that the useful life of the equipment is factored into this calculation.

APPENDIX A - SOURCES AND REFERENCES FOR ASSUMPTIONS FOR RESIDENTIAL DSM PROGRAMS AND MEASURES
July 2004

1	2	12	13	14	15	16	17	18	19
Program #	Energy Efficiency Program/Measure Description	Annual Amortized Cost Per kWh Saved	Annual Gallons of water saved (Where applicable)	Electric End Use Affected	Implementation Type 1 = 1 Time 2 = ROB	Base Case Factor (Saturation) for the end use (percent of residential customers having the end use)	High Efficiency equipment saturation (this is the % of existing units that are already energy efficient)	Remaining Factor (in what percent of existing units can this efficiency measure be installed)	Type of home where applicable
1	Low Income Program	$0.1610	0	All	1	33.00%	20.00%	80.0%	Low Income
2	Torchiere Turn-in Program	$0.0283	0	Lighting	1	50.00%	10.00%	90.0%	Homes with torchieres
3	Room Air Conditioner Trade In (The main purpose of this program is to take old, inefficient room air conditioners, off the grid)	$0.0231	0	Cooling	1	4.76%	12%	88%	Homes With Room AC
4	Refrigerator Trade In (The main purpose of this program is to take old, inefficient refrigerators, off the electric grid)	$0.0019	0	Refrigeration	1	100.00%	24.00%	76%	Homes with Refrigerators (all)
5	Thermostat Rebate Program (customer must have central air conditioning system to be eligible for this program)	$0.0090	0	HVAC (AC and space heating)	2	90.48%	10.00%	90%	Homes with Central Air Conditoning Units
6	3 - 60 Watt CFLs	$0.0094	0	Lighting	2	100.00%	2.00%	98%	Homes with Lighting
7	3 - 75 Watt CFLs	$0.0182	0	Lighting	2	100.00%	2.00%	98%	Homes with Lighting
8	3 - 100 Watt CFLs	$0.0151	0	Lighting	2	100.00%	2.00%	98%	Homes with Lighting
9	Energy Star Dishwashers	$0.1655	0	Dishwashing	2	57.14%	50.00%	50%	Homes with Dishwashers
10	Energy Star Clothes Washers	$0.0259	5400	Clothes washing	2	82.54%	19.00%	81%	Homes with Clothes Washers
11	Energy Star Consumer Electronics	$0.0070	0	Plug loads	2	100.00%	0.00%	100%	Homes with Electronics (all)
12	Energy Star Lighting Fixtures	$0.0447	0	Lighting	2	100.00%	1.00%	99%	Homes with Lighting Fixutres (all)
13	Energy Star Table Lamps	$0.0095	0	Lighting	2	100.00%	1.00%	99%	Homes with Lamps (all)
14A	Energy Star Homes Program	$0.1348	0	Heating, Cooling, Lighting, Appliances	1	100.00%	20.00%	80%	New homes
14B	Energy Star Homes Program	$0.0961	0	Heating, Cooling, Lighting, Appliances	1	100.00%	20.00%	80%	New homes

Notes:

1. This calculation assumes that the maximum achievable potential savings are attained over a ten-year period, that existing standard efficiency units are replaced on burn-out, and that the useful life of the equipment is factored into this calculation.

APPENDIX A - SOURCES AND REFERENCES FOR ASSUMPTIONS FOR RESIDENTIAL DSM PROGRAMS AND MEASURES
July 2004

1	2	20	21	22	23	24	25	26	27
Program #	Energy Efficiency Program/Measure Description	Total number of residential customers for Florida investor owned utilities in 2003	Number of homes with enduse in 2004 (Column 16 multipled by column 20)	Total Homes Remaining without measure	Maximum Number of new participants per year (80% penetration limit)[1]	Total annual kWh savings potential in 2004 if 100% penetration attained "overnight"	Total annual therm savings potential in 2004 if 100% penetration attained "overnight"	Total annual gallons of water savings potential in 2004	On-going annual O&M cost (+) or savings (-)
1	Low Income Program	6,300,000	2,079,000	1,663,200	124,740	2,631,182,400	5,239,080	0	$0.00
2	Torchiere Turn-in Program	6,300,000	3,150,000	2,835,000	220,500	394,065,000	0	0	$0.00
3	Room Air Conditioner Trade In (The main purpose of this program is to take old, inefficient room air conditioners, off the grid)	6,300,000	299,880	263,894	20,392	75,737,693	0	0	$0.00
4	Refrigerator Trade In (The main purpose of this program is to take old, inefficient refrigerators, off the electric grid)	6,300,000	6,300,000	4,788,000	352,800	9,317,448,000	0	0	$0.00
5	Thermostat Rebate Program (customer must have central air conditioning system to be eligible for this program)	6,300,000	5,700,240	5,130,216	249,386	6,448,681,512	0	0	$0.00
6	3 - 60 Watt CFLs	6,300,000	6,300,000	6,174,000	546,000	932,953,140	0	0	$0.00
7	3 - 75 Watt CFLs	6,300,000	6,300,000	6,174,000	546,000	1,135,769,040	0	0	$0.00
8	3 - 100 Watt CFLs	6,300,000	6,300,000	6,174,000	546,000	1,561,682,430	0	0	$0.00
9	Energy Star Dishwashers	6,300,000	3,599,820	1,799,910	83,073	280,785,960	0	0	$0.00
10	Energy Star Clothes Washers	6,300,000	5,200,020	4,212,016	244,001	3,083,195,858	0	16,649,257,635,360	$0.00
11	Energy Star Consumer Electronics	6,300,000	6,300,000	6,300,000	504,000	1,346,310,000	0	0	$0.00
12	Energy Star Lighting Fixtures	6,300,000	6,300,000	6,237,000	553,000	5,588,352,000	0	0	$0.00
13	Energy Star Table Lamps	6,300,000	6,300,000	6,237,000	553,000	941,787,000	0	0	$0.00
14A	Energy Star Homes Program	Not Applicable	Not Applicable	Not Applicable	16,000	Not Applicable	Not Applicable	0	$0.00
14B	Energy Star Homes Program	Not Applicable	Not Applicable	Not Applicable	16,000	Not Applicable	Not Applicable	0	$0.00

Notes:

1. This calculation assumes that the maximum achievable potential savings are attained over a ten-year period, that existing standard efficiency units are replaced on burn-out, and that the useful life of the equipment is factored into this calculation.

APPENDIX A - SOURCES AND REFERENCES FOR ASSUMPTIONS FOR RESIDENTIAL DSM PROGRAMS AND MEASURES
July 2004

1	2	3	4	5	6
Program #	**Program Description**	**Source for kWh, kW, Therm and Water savings**	**Source for Useful Life**	**Source for Incremental Cost**	**Source for Current Saturation**
1	**Low Income Program**	RemRate model runs done by Bruce Bennett 4-30-04	Estimate based on the 18.46 useful life used for Low Income Weatherization Programs for KeySpan	Meeting the Challenge: The Prospect of Achieving 30 Percent Energy Savings Through the Weatherization Assistance Program. Oak Ridge National Laboratory. May 2002	http://www.eia.doe.gov/emeu/recs/four_states/overview_fl.html
2	**Torchiere Turn-In Program**	GDS Calculation	Life of CFL bulb - 10,000 hours	GDS Calculation based on prices from Home Depot	GDS Estimate
3	**Room Air Conditioner Trade In**	GDS Estimate	2004 GPC IRP	California Statewide Residential Sector Energy Efficiency Potential Study, Volume 2 of 2, Appendicies A - L, November 27, 2002	http://www.eia.doe.gov/emeu/recs/recs2001/hc_pdf/appl/hc5-7a_4popstates2001.pdf
4	**Refrigerator Trade In**	Email from Marian Brown, Manager, Measurement & Evaluation at Southern California Edison. May 12, 2004	2004 GPC IRP	Email from Marian Brown, Manager, Measurement & Evaluation at Southern California Edison. May 12, 2004	http://www.eia.doe.gov/emeu/recs/recs2001/hc_pdf/appl/hc5-7a_4popstates2001.pdf
5	**Thermostat Rebate Program**	2004 GPC IRP - Page 3 of 6, row 5.	2004 GPC IRP - Page 3 of 6, row 5.	GDS Calculation based on actual prices from Home Depot as of May 14, 2004	http://www.eia.doe.gov/emeu/recs/recs2001/hc_pdf/appl/hc5-7a_4popstates2001.pdf
6	**3 - 60 Watt CFLs**	GDS Calculation	Home Depot (10,000 hour useful life)	GDS Calculation based on prices from Home Depot obtained in May 2004	GDS Estimate
7	**3 - 75 Watt CFLs**	GDS Calculation	Home Depot (10,000 hour useful life)	GDS Calculation based on prices from Home Depot obtained in May 2004	GDS Estimate
8	**3 - 100 Watt CFLs**	GDS Calculation	Home Depot (10,000 hour useful life)	GDS Calculation based on prices from Home Depot obtained in May 2004	GDS Estimate
9	**Energy Star Fixtures**	2004 GPC IRP	Life of CFL bulb - 10,000 hours	GDS Calculation based on prices from Home Depot obtained in May 2004	GDS Estimate
10	**Energy Star Table Lamps**	GDS Calculation	Life of CFL bulb - 10,000 hours	GDS Calculation based on prices from Home Depot obtained in May 2004	GDS Estimate
11	**Energy Star Dishwashers**	2004 GPC IRP	2004 GPC IRP	2004 GPC IRP	http://www.eia.doe.gov/emeu/recs/recs2001/hc_pdf/appl/hc5-7a_4popstates2001.pdf
12	**Energy Star Clothes Washers**	2004 GPC IRP	2004 GPC IRP	2004 GPC IRP	http://www.eia.doe.gov/emeu/recs/recs2001/hc_pdf/appl/hc5-7a_4popstates2001.pdf
13	**Energy Star Consumer Electronics**	New Appliance and Equipment Efficiency Standards. ACEEE 2001. National Estimated Energy Savings pg. 12 (25.5 tWh) divided by the 2002 census number of households nationwide (119 million)	GDS Estimate	GDS Estimate	GDS Estimate
14A	**Energy Star Homes Program - New Home with gas space heat and central air conditioning**	SWEEP Report, August 2003, "Increasing Energy Efficiency in New Buildings in the Southwest" Page 3-11	SWEEP Report, August 2003, "Increasing Energy Efficiency in New Buildings in the Southwest" Page 3-11	SWEEP Report, August 2003, "Increasing Energy Efficiency in New Buildings in the Southwest" Page 3-11	The number of new homes built per year is based upon FERC Form 1 data on residential customer counts for the years 2002 and 2003
14B	**Energy Star Homes Program - New Home with electric space heat and central air conditioning**	2004 GPC IRP	2004 GPC IRP	2004 GPC IRP	The number of new homes built per year is based upon FERC Form 1 data on residential customer counts for the years 2002 and 2003

APPENDIX A - INPUT ASSUMPTIONS FOR NON-RESIDENTIAL DSM PROGRAMS FOR FLORIDA IOU'S
July 2004

1	2	3	4	5	6	7	8	9	10
Measure # from GDS Gas DSM Data Base	**Program Description**	**Definition of Unit**	**Incremental Equipment Cost for High Efficiency Measure**	**Extra Labor Cost (if any labor beyond amt. in column 4)**	**Total Installed Cost (Materials + Labor)**	**Cost Type: Incremental = 0 Full = 1**	**Measure Life**	**Annual kWh Savings Per Unit Installed**	**Annual kW Savings Per Unit Installed**
1	**Commercial New Construction**	New Building	$18,200	$0.00	$18,200	0	20	66,722	10.01
2	**Non-Residential Retrofit**	Existing Building	$16,000	$0.00	$16,000	0	15	60,927	13.4
3	**Compressed Air Program**	Compressed Air System	$6,975	$0.00	$6,975	1	10	40,560	8.1
4	**High Efficiency Unitary HVAC**	HVAC Unit	$1,330	$0.00	$1,330	0	15	5,277	1.43

Notes:

1. This calculation assumes that the maximum potential savings are attained over a ten-year period, that existing standard efficiency units are replaced on burn-out, and that the useful life of the equipment is factored into this calculation.

Economic Factors *(GDS Estimates)*

Real Discount Rate	5.61%
Inflation Rate	2.45%
Nominal Discount Rate	8.20%

CRR = $d / (1- (1+d)^{-n})$ where, d = real discount rate and n = measure life in years
CCE = Cost * CRR / Annual kWh

APPENDIX A - INPUT ASSUMPTIONS FOR NON-RESIDENTIAL DSM PROGRAMS FOR FLORIDA IOU'S
July 2004

1	2	11	12	13	14	15	16	17	18
Measure # from GDS Gas DSM Data Base	Program Description	Annual MMBtu (Natural Gas) Savings Per Unit Installed	Cost of Conserved Energy (CCE) $/kWh	Annual Gallons of water saved	Electric End Use Affected	Implementation Type 1 = 1 Time 2 = ROB	Base Case Factor (Saturation) for the enduse	High Efficiency equipment saturation	Remaining Factor (In how many buildings can this be installed)
1	Commercial New Construction	15.3	$0.0230	0	HVAC, Lighting, Motors/Drives, Refrigeration	2	100%	20%	80%
2	Non-Residential Retrofit	14.0	$0.0264	0	HVAC, Lighting, Motors/Drives, Refrigeration	2	80%	25%	75%
3	Compressed Air Program	0	$0.0229	0	Compressed Air Motors	1	25%	25%	75%
4	High Efficiency Unitary HVAC	0	$0.0253	0	Unitary HVAC	2	48%	0%	80%

Notes:

1. This calculation assumes that the maximum potential savings
ten-year period, that existing standard efficiency units are replac
that the useful life of the equipment is factored into this

Economic Factors *(GDS Estimates)*

Real Discount Rate	5.61%
Inflation Rate	2.45%
Nominal Discount Rate	8.20%

APPENDIX A - INPUT ASSUMPTIONS FOR NON-RESIDENTIAL DSM PROGRAMS FOR FLORIDA IOU'S
July 2004

1	2	19	20	21	22	23	24
Measure # from GDS Gas DSM Data Base	Program Description	Type of building where applicable	Total number of commercial customers	Number of buildings with enduse in 2004	Total Buildings Remaining without measure	Maximum Number of new participants per year (80% penetration limit)[1]	Total annual MWh savings potential in 2004 if 100% penetration attained "overnight"
1	**Commercial New Construction**	New Building	15,830	15,830	12,664	950	844,971
2	**Non-Residential Retrofit**	Existing Building	699,703	559,762	419,822	20,525	25,578,443
3	**Compressed Air Program**	Building with Compressed Air Systems	699,703	174,926	131,194	9,621	5,321,176
4	**High Efficiency Unitary HVAC**	Building with Unitary HVAC Systems	699,703	333,758	267,007	17,800	1,408,914

Notes:

1. This calculation assumes that the maximum potential savings ten-year period, that existing standard efficiency units are replac that the useful life of the equipment is factored into this c

Economic Factors *(GDS Estimates)*

Real Discount Rate	5.61%
Inflation Rate	2.45%
Nominal Discount Rate	8.20%

APPENDIX A - SOURCES AND REFERENCES FOR ASSUMPTIONS FOR NON-RESIDENTIAL DSM PROGRAMS
July 2004

1	2	3	4	5	6	7
Program #	**Program Description**	**Source for kWh, kW, Therm and Water savings**	**Source for Useful Life**	**Source for Incremental Cost**	**Source for Current Saturation**	**Source for High Efficiency Saturation**
1	**Commercial New Construction**	Southern California Edison 2004 Energy Efficiency Annual Report. Supplemented by email from Nancy Le (SCE) on 5-12-04. The savings per building were reduced to reflect the average use per building for commercial customers in Florida.	New York Energy $mart Program Evaluation and Status Report, NYSERDA, January 2002.	Florida Power & Light Company - Testimony of C. Dennis Brandt Docket No. 040029-EG June 1, 2004	Determined by calculating the difference in Commercial customers between 2003 and 2002 on each fo the Florida IOU's FERC Form 1 for 2003.	GDS Estimate.
2	**Non-Residential Retrofit**	Southern California Edison 2004 Energy Efficiency Annual Report. The savings per building were reduced to reflect the average use per building for commercial customers in Florida.	New York Energy $mart Program Evaluation and Status Report, NYSERDA, January 2002.	Southern California Edison 2004 Energy Efficiency Annual Report.	GDS Estimate. Assumes that 20% of non-residential customers are too small to consider this comprehensive program.	GDS Estimate.
3	**Compressed Air Program**	America's Best DSM Programs, ACEEE 2003. PG&E's Compressed Air Management Program. www.aceee.org/utility/bestpractoc.pdf The savings per building were reduced to reflect the average use per building for commercial customers in Florida.	National Grid Company, 2001 DSM Performance Measurement Report, July 2002.	America's Best DSM Programs, ACEEE 2003. PG&E's Compressed Air Management Program. www.aceee.org/utility/bestpractoc.pdf	GDS Estimate. Assumes that only 25% of commercial customers have compressed air systems.	GDS Estimate.
4	**High Efficiency Unitary HVAC**	Florida Power & Light Company - Testimony of C. Dennis Brandt Docket No. 040029-EG June 1, 2004 and Consortium for Energy Efficiency Website (www.cee1.org) - "Per-Unit Incremental Costs and Savings of High-Efficiency Packaged Commerical A/C" 2000	California Statewide Commerical Sector Energy Efficiency Potential Study, Study ID #SW039A, XENERGY July 9, 2002.	Florida Power & Light Company - Testimony of C. Dennis Brandt Docket No. 040029-EG June 1, 2004	US DOE Commercial Building Energy Consumption Survey (CBECS) www.eia.doe.gov/emeu/cbecs/excel/b34.xls	California Statewide Commerical Sector Energy Efficiency Potential Study, Study ID #SW039A, XENERGY July 9, 2002.

APPENDIX B

APPENDIX B

SUMMARY OF CUMULATIVE ANNUAL MWH AND MW SAVINGS FOR FLORIDA IOU SERVICE AREAS FOR THOSE DSM PROGRAMS THAT PASS THE TOTAL RESOUCE COST (TRC) TEST

	Cumulative Annual MWH Savings			Cumulative Annual MW Savings			DSM Impacts for Florida IOUs			
Year	Residential MWH Savings	Commercial MWH Savings	Total MWH Savings	Residential MW Savings	Commercial MW Savings	Total MW Savings	2003 Florida IOU MWH Sales to Ultimate Customers	Total DSM MWH Savings as % of 2003 MWH Sales	2003 Peak Load	DSM MW as % of 2003 Peak Load
2004	2,935,968	1,798,046	4,734,014	470.1	237.1	707	167,303,289	2.8%	34,444	2.1%
2005	5,871,937	3,596,092	9,468,028	940.3	474.2	1,414	170,649,355	5.5%	35,133	4.0%
2006	8,807,905	5,394,137	14,202,042	1,410.4	711.2	2,122	174,062,342	8.2%	35,835	5.9%
2007	11,743,873	7,192,183	18,936,056	1,880.6	948.3	2,829	177,543,589	10.7%	36,552	7.7%
2008	14,679,842	8,990,229	23,670,071	2,350.7	1,185.4	3,536	181,094,460	13.1%	37,283	9.5%
2009	17,615,810	10,788,275	28,404,085	2,820.9	1,422.5	4,243	184,716,350	15.4%	38,029	11.2%
2010	19,865,229	12,586,320	32,451,549	3,181.1	1,659.5	4,841	188,410,677	17.2%	38,789	12.5%
2011	22,083,998	14,384,366	36,468,364	3,536.4	1,896.6	5,433	192,178,890	19.0%	39,565	13.7%
2012	24,302,767	16,182,412	40,485,179	3,891.7	2,133.7	6,025	196,022,468	20.7%	40,356	14.9%
2013	26,116,976	17,980,458	44,097,434	4,182.2	2,370.8	6,553	199,942,917	22.1%	41,164	15.9%

Note: Energy sales and peak load are estimated to increase at 2.0% per year based on EIA's Annual Energy Outlook 2004.

APPENDIX B

SUMMARY OF CUMULATIVE ANNUAL MWH AND MW SAVINGS FOR FLORIDA IOU SERVICE AREAS FOR THOSE DSM PROGRAMS THAT PASS THE RATEPAYER IMPACT (RIM) TEST

	Cumulative Annual MWH Savings			Cumulative Annual MW Savings			DSM Impacts for Florida IOUs			
Year	Residential MWH Savings	Commercial MWH Savings	Total MWH Savings	Residential MW Savings	Commercial MW Savings	Total MW Savings	2003 Florida IOU MWH Sales to Ultimate Customers	Total DSM MWH Savings as % of 2003 MWH Sales	2003 Peak Load	DSM MW as % of 2003 Peak Load
2004	2,707,980	93,925	2,801,905	381.7	26.6	408	167,303,289	1.7%	34,444	1.2%
2005	5,415,960	187,851	5,603,811	763.4	53.2	817	170,649,355	3.3%	35,133	2.3%
2006	8,123,940	281,776	8,405,716	1,145.2	79.8	1,225	174,062,342	4.8%	35,835	3.4%
2007	10,831,920	375,701	11,207,621	1,526.9	106.4	1,633	177,543,589	6.3%	36,552	4.5%
2008	13,539,900	469,626	14,009,526	1,908.6	133.0	2,042	181,094,460	7.7%	37,283	5.5%
2009	16,247,880	563,552	16,811,432	2,290.3	159.6	2,450	184,716,350	9.1%	38,029	6.4%
2010	18,269,311	657,477	18,926,787	2,575.3	186.2	2,761	188,410,677	10.0%	38,789	7.1%
2011	20,290,741	751,402	21,042,143	2,860.2	212.8	3,073	192,178,890	10.9%	39,565	7.8%
2012	22,312,172	845,327	23,157,499	3,145.2	239.4	3,385	196,022,468	11.8%	40,356	8.4%
2013	23,929,042	939,253	24,868,295	3,373.1	266.0	3,639	199,942,917	12.4%	41,164	8.8%

Note: Energy sales and peak load are estimated to increase at 2.0% per year based on EIA's Annual Energy Outlook 2004.

APPENDIX C

APPENDIX C - EIA FORM 861 ENERGY EFFICIENCY PROGRAM DATA FOR 2002 - MWH SAVINGS						
Rank-Low to High	Rank - High to Low	Utility Code	Name	EE kWh savings for 2002 as percent of annual mWh sales of utility	2002 Energy Savings (MWh)	2002 Energy Sales (MWh)
1	242	5487	Duquesne Light Co	0.00%	3	10,681,574
2	241	3916	Cobb Electric Membership Corp	0.00%	3	3,362,087
3	240	16572	Salt River Project	0.00%	32	22,783,685
4	239	10623	Lakeland City of	0.00%	9	2,702,406
5	238	562	Amicalola Electric Member Corp	0.00%	2	503,419
6	237	17718	Southwestern Public Service Co	0.00%	64	15,892,774
7	236	14170	Orcas Power & Light Cooperative	0.00%	1	179,379
8	235	4226	Consolidated Edison Co-NY Inc	0.00%	201	31,754,647
9	234	1763	Black River Electric Coop, Inc	0.00%	5	634,569
10	233	16674	Satilla Rural Elec Member Corporation	0.00%	8	927,781
11	232	367	Alliance City of	0.00%	1	113,577
12	231	14109	Oregon Trail El Cons Coop, Inc	0.00%	6	652,130
13	230	40221	Bedford Rural Elec Coop, Inc	0.00%	1	107,741
14	229	14127	Omaha Public Power District	0.00%	117	8,772,187
15	228	122	Arcade Village of	0.00%	2	144,667
16	227	12265	Medford City of	0.00%	2	140,044
17	226	5309	Dothan City of	0.00%	16	1,056,687
18	225	2144	Braintree Town of	0.00%	6	380,998
19	224	18087	Sterling Town of	0.00%	1	50,867
20	223	13936	Oakdale Electric Cooperative	0.00%	4	202,539
21	222	7489	Grand Rapids Public Util Comm	0.00%	3	150,679
22	221	3400	Chaska City of	0.00%	5	248,691
23	220	40212	Colquitt Electric Membership Corp	0.00%	35	1,591,971
24	219	5585	Eastern Illinois Elec Coop	0.00%	5	204,843
25	218	1427	Beatrice City of	0.00%	5	168,868
26	217	6335	Firelands Electric Coop, Inc	0.00%	4	133,735
27	216	3542	The Cincinnati Gas & Electric Company	0.00%	575	18,463,484
28	215	2985	Capital Electric Coop, Inc	0.00%	6	180,068
29	214	19788	Vermillion City of	0.00%	2	55,663
30	213	13640	Northern Virginia Elec Coop	0.00%	94	2,533,321
31	212	16679	Sauk Centre City of	0.00%	2	53,266
32	211	16604	San Antonio City of	0.00%	666	17,000,863
33	210	12900	Mora City of	0.00%	2	50,000
34	209	9689	Jefferson Electric Member Corp	0.00%	21	513,562
35	208	3252	Central Illinois Light Co	0.00%	269	6,120,984
36	207	9613	Lebanon City of	0.00%	10	201,644
37	206	20847	Wisconsin Electric Power Co	0.01%	1,416	27,723,451
38	205	14537	Pascoag Utility District	0.01%	3	47,387
39	204	8566	High Plains Power, Inc	0.01%	46	704,803
40	203	12717	Mitchell City of	0.01%	1	13,547
41	202	22053	Kentucky Power Co	0.01%	532	6,961,064
42	201	195	Alabama Power Co	0.01%	4,004	52,073,190
43	200	10171	Kentucky Utilities Co	0.01%	1,379	17,633,139
44	199	17127	Shrewsbury Town of	0.01%	24	293,535
45	198	15497	Puerto Rico Electric Pwr Authority	0.01%	1,690	19,564,796
46	197	8319	Heartland Power Cooperative	0.01%	10	114,038

APPENDIX C - EIA FORM 861 ENERGY EFFICIENCY PROGRAM DATA FOR 2002 - MWH SAVINGS						
Rank-Low to High	Rank - High to Low	Utility Code	Name	EE kWh savings for 2002 as percent of annual mWh sales of utility	2002 Energy Savings (MWh)	2002 Energy Sales (MWh)
47	196	13780	Northern States Power Co	0.01%	509	5,759,803
48	195	1251	Barron Electric Cooperative	0.01%	25	275,173
49	194	11085	Littleton Town of	0.01%	20	207,000
50	193	12390	Metropolitan Edison Co	0.01%	1,192	10,993,418
51	192	17900	Saint Peter City of	0.01%	9	77,772
52	191	12686	Mississippi Power Co	0.01%	1,126	9,403,846
53	190	13815	Northwestern Wisconsin Elec Co	0.01%	21	172,091
54	189	20885	Withlacoochee River Elec Coop	0.01%	396	3,062,355
55	188	7806	Entergy Gulf States Inc	0.01%	4,381	33,759,924
56	187	14711	Pennsylvania Electric Co	0.01%	1,711	12,479,066
57	186	8570	Highline Electric Assn	0.01%	64	460,470
58	185	6342	First Electric Coop Corp	0.01%	214	1,446,264
59	184	19390	UGI Utilities, Inc	0.01%	141	948,911
60	183	17868	St Croix Electric Cooperative	0.02%	22	144,000
61	182	17585	Southeastern IL Elec Coop, Inc	0.02%	105	664,222
62	181	5111	Detroit Lakes City of	0.02%	25	153,424
63	180	5997	Estes Park Town of	0.02%	19	114,437
64	179	17637	Southern Maryland Elect Cooperative, I	0.02%	490	2,865,590
65	178	6077	Exeter & Hampton Electric Co	0.02%	128	626,419
66	177	14251	Owen Electric Cooperative, Inc	0.02%	387	1,883,986
67	176	18820	Thief River Falls City of	0.02%	27	130,934
68	175	11355	Lynches River Elec Coop, Inc	0.02%	72	347,729
69	174	7787	Gunnison County Elec Assn.	0.02%	23	107,618
70	173	4045	Columbia City of	0.02%	219	988,666
71	172	6604	Fort Collins City of	0.02%	289	1,302,636
72	171	15257	Poudre Valley R E A, Inc	0.02%	163	712,806
73	170	4148	Concord Electric Co	0.02%	129	554,265
74	169	1613	Berkeley Electric Coop Inc	0.02%	320	1,373,745
75	168	18280	Sulphur Springs Valley E C Inc	0.02%	140	596,116
76	167	15034	Pierce-Pepin Coop Services	0.02%	27	110,629
77	166	16865	Sawnee Electric Membership Corporation	0.03%	579	2,301,542
78	165	19446	The Union Light, Heat & Power Co	0.03%	972	3,797,166
79	164	8298	Hawkeye Tri-County El Coop Inc	0.03%	32	121,225
80	163	11124	Lodi City of	0.03%	109	410,031
81	162	5076	Denver City of	0.03%	3	11,285
82	161	2534	Burke City of	0.03%	2	7,456
83	160	198	Alton City of	0.03%	3	10,985
84	159	11731	Marshall City of	0.03%	156	552,258
85	158	17828	Springfield City of	0.03%	506	1,703,135
86	157	15983	Richland Electric Cooperative	0.03%	16	51,968
87	156	14600	Payson City Corporation	0.03%	25	80,047
88	155	15470	PSI Energy Inc	0.03%	8,610	27,272,584
89	154	5417	Dunn County Electric Coop	0.03%	41	127,067
90	153	13762	Northern Neck Elec Coop, Inc	0.03%	70	213,822
91	152	19813	Vernon Electric Cooperative	0.03%	43	130,423
92	151	9191	Idaho Power Co	0.03%	4,451	12,894,068
93	150	11475	Madison City of	0.03%	30	86,793

APPENDIX C - EIA FORM 861 ENERGY EFFICIENCY PROGRAM DATA FOR 2002 - MWH SAVINGS						
Rank-Low to High	Rank - High to Low	Utility Code	Name	EE kWh savings for 2002 as percent of annual mWh sales of utility	2002 Energy Savings (MWh)	2002 Energy Sales (MWh)
94	149	3701	Clark Electric Cooperative	0.04%	57	156,712
95	148	2955	Canby Utility Board	0.04%	57	152,254
96	147	3989	Colorado Springs City of	0.04%	1,692	4,293,863
97	146	15776	Reedy Creek Improvement Dist	0.04%	452	1,124,053
98	145	19157	Tri-County Electric Coop	0.04%	91	224,102
99	144	17698	Southwestern Electric Power Co	0.04%	6,372	15,561,597
100	143	11187	Longmont City of	0.04%	307	727,072
101	142	14653	PUD No 1 of Pend Oreille Cnty	0.04%	407	954,194
102	141	9617	Jacksonville Electric Authority	0.04%	5,105	11,925,601
103	140	3226	Central Rural Electric Cooperative, In	0.04%	192	437,071
104	139	15270	Potomac Electric Power Co	0.05%	7,199	15,827,579
105	138	4632	Cuming County Public Pwr Dist	0.05%	51	111,500
106	137	14398	Palmetto Electric Coop Inc	0.05%	609	1,284,129
107	136	14468	People's Cooperative Services	0.05%	104	216,011
108	135	13955	Ocala City of	0.05%	625	1,239,249
109	134	18488	Taunton City of	0.05%	344	672,786
110	133	13839	Norwood City of	0.05%	174	323,225
111	132	11501	Magic Valley Electric Coop Inc	0.05%	600	1,107,658
112	131	12260	Mecklenburg Electric Coop, Inc	0.06%	288	522,283
113	130	16088	Riverside City of	0.06%	980	1,748,352
114	129	9922	Jump River Electric Coop, Inc	0.06%	50	83,944
115	128	6235	Public Works Comm-City of Fayetteville	0.06%	1,245	2,082,850
116	127	12462	Mid-Carolina Electric Coop Inc	0.06%	506	845,671
117	126	7353	Golden Valley Electric Assn Inc	0.06%	647	1,069,320
118	125	11624	Marblehead City of	0.07%	67	101,154
119	124	13206	Nantucket Electric Co	0.07%	83	121,787
120	123	13664	Norris Public Power District	0.07%	375	538,147
121	122	40051	Texas-New Mexico Power Co	0.07%	1,067	1,504,675
122	121	6455	Florida Power Corp	0.07%	26,489	36,859,347
123	120	2442	Bryan City of	0.07%	750	1,002,715
124	119	9231	Independence City of	0.08%	785	1,039,790
125	118	5575	East Grand Forks City of	0.09%	110	126,950
126	117	17561	South Plains Electric Coop Inc	0.09%	977	1,117,984
127	116	9275	Indianola Municipal Utilities	0.09%	94	107,384
128	115	6198	Farmers' Electric Coop, Inc	0.09%	220	243,303
129	114	13407	Nevada Power Company	0.09%	16,120	17,599,820
130	113	329	Allamakee-Clayton El Coop, Inc	0.10%	111	115,011
131	112	2182	Breckenridge City of	0.10%	36	37,240
132	111	10857	Lee County Electric Coop, Inc	0.10%	2,877	2,910,594
133	110	5070	Delaware Electric Coop Inc	0.10%	895	891,013
134	109	9026	Humboldt County R E C	0.10%	50	49,614
135	108	18454	Tampa Electric Co	0.10%	18,800	17,925,140
136	107	1179	Bangor Hydro-Electric Co	0.11%	437	399,810
137	106	6582	Forest Grove City of	0.11%	275	239,810
138	105	15296	New York Power Authority	0.12%	16,550	14,271,883
139	104	7801	Gulf Power Co	0.12%	12,614	10,771,897
140	103	11249	Louisville Gas & Electric Co	0.12%	14,077	11,810,125

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Rank- Low to High	Rank - High to Low	Utility Code	Name	EE kWh savings for 2002 as percent of annual mWh sales of utility	2002 Energy Savings (MWh)	2002 Energy Sales (MWh)
141	102	207	Alameda City of	0.12%	446	366,835
142	101	6722	Franklin Rural Electric Cooperative	0.12%	64	52,634
143	100	11018	Lincoln Electric System	0.13%	3,660	2,926,216
144	99	15477	Public Service Elec & Gas Co	0.13%	52,634	41,555,465
145	98	13143	Board of Water Electric & Communicatio	0.14%	1,156	826,189
146	97	10944	PUD No 1 of Lewis County	0.15%	1,097	752,124
147	96	20413	Mountrail-Williams Elec Coop	0.15%	254	172,396
148	95	12301	Nodak Electric Coop Inc	0.15%	1,006	680,051
149	94	13783	Northeast Louisiana Power Coop Inc.	0.15%	362	237,616
150	93	3248	Central Georgia El Member Corp	0.15%	1,160	748,519
151	92	17783	Spencer City of	0.17%	253	149,158
152	91	19798	Vernon City of	0.17%	1,913	1,120,872
153	90	16060	Riverland Energy Cooperative	0.17%	402	233,402
154	89	6151	Fairmont Public Utilities Comm	0.17%	282	163,179
155	88	2600	Burt City of	0.18%	6	3,376
156	87	17252	Singing River Elec Pwr Assn	0.18%	2,280	1,261,669
157	86	19791	Vermont Electric Coop, Inc	0.18%	265	144,978
158	85	15466	Public Service Co of Colorado	0.20%	50,430	25,814,418
159	84	18304	Sumter Electric Coop, Inc	0.20%	3,825	1,940,004
160	83	3203	Cedar Falls Utilities	0.21%	813	383,317
161	82	6452	Florida Power & Light Company	0.22%	206,945	95,542,625
162	81	3940	College Station City of	0.22%	1,414	639,975
163	80	18383	Taylor Electric Cooperative	0.22%	139	62,184
164	79	14232	Otter Tail Power Co	0.23%	8,389	3,690,587
165	78	15248	Portland General Electric Company	0.24%	44,965	18,771,884
166	77	11305	Ludlow Village of	0.24%	111	45,679
167	76	12745	Modesto Irrigation District	0.25%	5,721	2,305,705
168	75	40438	Columbia River Peoples Ut Dist	0.25%	1,175	461,209
169	74	6909	Gainesville Regional Utilities	0.26%	4,614	1,773,640
170	73	12341	MidAmerican Energy Co	0.26%	48,361	18,505,770
171	72	11740	Marshfield City of	0.27%	942	350,498
172	71	18429	Tacoma City of	0.27%	12,272	4,535,202
173	70	20151	Washington Electric Coop, Inc	0.28%	175	62,227
174	69	14354	PacifiCorp	0.29%	134,145	47,029,924
175	68	13816	Northwood City of	0.29%	40	13,573
176	67	9726	Jersey Central Power & Lt Co	0.30%	61,106	20,562,264
177	66	17535	South Beloit Wtr Gas & Elec Co	0.30%	609	203,794
178	65	16295	Roseville City of	0.30%	2,985	984,757
179	64	18642	Tennessee Valley Authority	0.32%	94,316	29,325,376
180	63	14401	Palo Alto City of	0.33%	3,274	995,401
181	62	10608	Lake Park City of	0.34%	39	11,339
182	61	16529	Sac County Rural Electric Coop	0.37%	80	21,867
183	60	6274	Fennimore City of	0.38%	131	34,809
184	59	15500	Puget Sound Energy Inc	0.39%	75,307	19,253,824
185	58	108	Adams-Columbia Electric Coop	0.39%	1,600	408,063
186	57	15938	Rice Lake Utilities	0.40%	636	159,578
187	56	18336	Superior Water, Light and Power Compan	0.42%	2,311	547,157

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Rank- Low to High	Rank - High to Low	Utility Code	Name	EE kWh savings for 2002 as percent of annual mWh sales of utility	2002 Energy Savings (MWh)	2002 Energy Sales (MWh)
188	55	13441	New Hampshire Elec Coop Inc	0.44%	2,863	657,703
189	54	15472	Public Service Co of NH	0.44%	32,398	7,403,568
190	53	20169	Avista Corp	0.46%	34,882	7,598,029
191	52	12894	Moorhead City of	0.46%	1,656	359,070
192	51	1015	Austin Energy	0.47%	48,452	10,271,539
193	50	9216	Imperial Irrigation District	0.47%	12,670	2,680,719
194	49	17643	Southern Iowa Elec Coop, Inc	0.48%	346	71,937
195	48	17166	Sierra Pacific Power Co	0.48%	42,000	8,703,901
196	47	4184	Connecticut Valley Elec Co Inc	0.48%	765	157,994
197	46	19281	Turlock Irrigation District	0.49%	7,376	1,493,463
198	45	4089	Commonwealth Electric Co	0.50%	16,218	3,245,928
199	44	16555	Salem City of	0.51%	1,987	390,673
200	43	12825	NorthWestern Energy LLC	0.51%	25,042	4,899,970
201	42	18445	Tallahassee City of	0.51%	13,256	2,587,945
202	41	14426	Panhandle Rural El Member Assn	0.52%	611	116,711
203	40	6395	Flathead Electric Coop Inc	0.52%	7,091	1,352,177
204	39	16181	Rochester Public Utilities	0.53%	6,242	1,173,749
205	38	12647	Minnesota Power Inc	0.53%	46,896	8,779,771
206	37	3278	AEP Texas Central Company	0.55%	8,294	1,498,676
207	36	11256	Loveland City of	0.56%	2,989	536,992
208	35	10908	Lenox City of	0.56%	89	15,875
209	34	9417	Interstate Power and Light Co	0.62%	95,974	15,522,355
210	33	26510	Granite State Electric Co	0.64%	4,801	744,950
211	32	2886	Cambridge Electric Light Co	0.65%	9,261	1,418,826
212	31	16655	Santa Clara City of	0.67%	16,080	2,410,503
213	30	11804	Massachusetts Electric Co	0.67%	114,725	17,145,737
214	29	16868	Seattle City of	0.69%	61,546	8,923,130
215	28	14201	Osage City of	0.70%	340	48,283
216	27	20997	Yellowstone Valley Elec Co-op	0.71%	1,353	191,343
217	26	11843	Maui Electric Co Ltd	0.71%	8,235	1,158,717
218	25	16534	Sacramento Municipal Util Dist	0.73%	69,449	9,505,300
219	24	15783	Redding City of	0.74%	5,300	715,635
220	23	17609	Southern California Edison Co	0.75%	405,499	54,391,384
221	22	1367	Bayfield Electric Coop, Inc	0.77%	557	72,317
222	21	13214	The Narragansett Electric Co	0.77%	50,657	6,575,579
223	20	13781	Northern States Power Co	0.80%	270,982	33,873,812
224	19	4176	Connecticut Light & Power Co	0.80%	184,628	22,951,701
225	18	20455	Western Massachusetts Elec Co	0.81%	26,749	3,319,632
226	17	2008	Boulder City City of	0.85%	1,303	152,787
227	16	14624	PUD No 2 of Grant County	0.86%	20,973	2,439,741
228	15	14328	Pacific Gas & Electric Co	0.87%	431,544	49,830,092
229	14	17577	South Sioux City City of	0.88%	1,500	171,073
230	13	17839	Springfield City of	0.95%	7,000	735,086
231	12	590	Anaheim City of	0.97%	24,191	2,486,824
232	11	1998	Boston Edison Co	1.00%	107,102	10,724,435
233	10	19497	United Illuminating Co	1.10%	63,583	5,781,010
234	9	6022	Eugene City of	1.16%	29,580	2,542,729

APPENDIX C - EIA FORM 861 ENERGY EFFICIENCY PROGRAM DATA FOR 2002 - MWH SAVINGS						
Rank-Low to High	Rank - High to Low	Utility Code	Name	EE kWh savings for 2002 as percent of annual mWh sales of utility	2002 Energy Savings (MWh)	2002 Energy Sales (MWh)
235	8	4527	Crete City of	1.27%	1,395	109,572
236	7	2548	Burlington City of	1.30%	4,437	340,502
237	6	20856	Wisconsin Power & Light Co	1.46%	144,627	9,896,116
238	5	20404	AEP Texas North Company	1.55%	6,550	423,500
239	4	3266	Central Maine Power Co	1.68%	3,547	211,163
240	3	7303	Glidden Rural Electric Coop	2.54%	1,329	52,380
241	2	189	Alabama Electric Cooperative, Inc	4.10%	4,698	114,570
242	1	1702	Biggs City of	9.22%	1,450	15,725

APPENDIX C - EIA FORM 861 ENERGY EFFICIENCY PROGRAM DATA FOR 2002 - MW SAVINGS						
Rank-Low to High	Rank - High to Low	Code	Name	EE MW savings for 2002 as percent of annual MW peak load of utility	2002 Demand Savings from EE Programs (MW)	2002 Peak Demand (MW)
1	172	16572	Salt River Project	0.02%	1	5,296
2	171	17718	Southwestern Public Service Co	0.02%	1	4,354
3	170	15497	Puerto Rico Electric Pwr Authority	0.03%	1	3,361
4	169	15270	Potomac Electric Power Co	0.03%	1	3,255
5	168	7806	Entergy Gulf States Inc	0.03%	2	6,400
6	167	5487	Duquesne Light Co	0.03%	1	2,886
7	166	5580	East Kentucky Power Coop, Inc	0.04%	1	2,278
8	165	189	Alabama Electric Cooperative, Inc	0.05%	1	2,098
9	164	40051	Texas-New Mexico Power Co	0.05%	1	1,845
10	163	3278	AEP Texas Central Company	0.06%	2	3,203
11	162	15470	PSI Energy Inc	0.07%	4	5,829
12	161	20404	AEP Texas North Company	0.08%	1	1,326
13	160	24211	Tucson Electric Power Co	0.11%	2	1,899
14	159	7140	Georgia Power Co	0.11%	17	15,380
15	158	22053	Kentucky Power Co	0.13%	2	1,551
16	157	4226	Consolidated Edison Co-NY Inc	0.14%	14	10,215
17	156	15477	Public Service Elec & Gas Co	0.14%	14	10,188
18	155	7004	Buckeye Power, Inc	0.14%	2	1,399
19	154	14232	Otter Tail Power Co	0.16%	1	640
20	153	44372	Oncor Electric Delivery Company	0.18%	40	22,840
21	152	13640	Northern Virginia Elec Coop	0.18%	1	556
22	151	18642	Tennessee Valley Authority	0.18%	53	29,052
23	150	15143	Platte River Power Authority	0.19%	1	533
24	149	13407	Nevada Power Company	0.19%	9	4,617
25	148	14127	Omaha Public Power District	0.20%	4	2,037
26	147	3916	Cobb Electric Membership Corp	0.20%	2	1,002
27	146	9617	Jacksonville Electric Authority	0.23%	6	2,607
28	145	3252	Central Illinois Light Co	0.24%	3	1,270
29	144	13780	Northern States Power Co	0.24%	3	1,240
30	143	17568	South Mississippi El Pwr Assn	0.27%	3	1,129
31	142	1613	Berkeley Electric Coop Inc	0.29%	1	341
32	141	18454	Tampa Electric Co	0.30%	11	3,634
33	140	14251	Owen Electric Cooperative, Inc	0.30%	1	328
34	139	9726	Jersey Central Power & Lt Co	0.31%	18	5,820
35	138	13955	Ocala City of	0.32%	1	309
36	137	7801	Gulf Power Co	0.33%	8	2,454
37	136	4089	Commonwealth Electric Co	0.33%	3	902
38	135	9231	Independence City of	0.34%	1	294
39	134	18445	Tallahassee City of	0.34%	2	580
40	133	12825	NorthWestern Energy LLC	0.36%	5	1,390
41	132	12647	Minnesota Power Inc	0.40%	6	1,485
42	131	12681	Mississippi County Electric Cooperative	0.41%	2	487
43	130	11249	Louisville Gas & Electric Co	0.42%	11	2,623
44	129	10000	Kansas City Power & Light Co	0.42%	14	3,335
45	128	6455	Florida Power Corp	0.42%	38	9,045
46	127	17609	Southern California Edison Co	0.45%	83	18,368
47	126	14328	Pacific Gas & Electric Co	0.46%	82	17,693

APPENDIX C - EIA FORM 861 ENERGY EFFICIENCY PROGRAM DATA FOR 2002 - MW SAVINGS						
Rank-Low to High	Rank - High to Low	Code	Name	EE MW savings for 2002 as percent of annual MW peak load of utility	2002 Demand Savings from EE Programs (MW)	2002 Peak Demand (MW)
48	125	16868	Seattle City of	0.48%	8	1,668
49	124	12658	Minnkota Power Coop, Inc	0.48%	3	620
50	123	3503	Choptank Electric Coop, Inc	0.51%	1	197
51	122	3258	Central Iowa Power Cooperative	0.54%	3	558
52	121	2886	Cambridge Electric Light Co	0.57%	2	348
53	120	20169	Avista Corp	0.58%	8	1,389
54	119	13441	New Hampshire Elec Coop Inc	0.58%	1	172
55	118	6452	Florida Power & Light Company	0.61%	117	19,219
56	117	14624	PUD No 2 of Grant County	0.61%	3	490
57	116	4176	Connecticut Light & Power Co	0.62%	32	5,126
58	115	12301	Nodak Electric Coop Inc	0.63%	1	160
59	114	17166	Sierra Pacific Power Co	0.63%	10	1,590
60	113	13337	Nebraska Public Power District	0.63%	15	2,370
61	112	7639	Greenville Utilities Comm	0.64%	2	314
62	111	3989	Colorado Springs City of	0.64%	5	784
63	110	14398	Palmetto Electric Coop Inc	0.65%	2	310
64	109	12341	MidAmerican Energy Co	0.67%	26	3,889
65	108	3940	College Station City of	0.68%	1	148
66	107	9216	Imperial Irrigation District	0.68%	5	740
67	106	19281	Turlock Irrigation District	0.69%	3	434
68	105	1998	Boston Edison Co	0.70%	23	3,300
69	104	16655	Santa Clara City of	0.72%	3	419
70	103	15466	Public Service Co of Colorado	0.72%	29	4,001
71	102	10857	Lee County Electric Coop, Inc	0.73%	5	682
72	101	16534	Sacramento Municipal Util Dist	0.76%	21	2,779
73	100	562	Amicalola Electric Member Corp	0.76%	1	131
74	99	20455	Western Massachusetts Elec Co	0.77%	6	780
75	98	4045	Columbia City of	0.84%	2	239
76	97	15783	Redding City of	0.88%	2	227
77	96	5552	East River Elec Pwr Coop, Inc	0.90%	3	332
78	95	17252	Singing River Elec Pwr Assn	0.92%	3	325
79	94	7887	Habersham Electric Membership Corp	1.01%	1	99
80	93	20856	Wisconsin Power & Light Co	1.08%	29	2,674
81	92	3248	Central Georgia El Member Corp	1.12%	2	179
82	91	18336	Superior Water, Light and Power Compan	1.18%	1	85
83	90	16181	Rochester Public Utilities	1.18%	3	254
84	89	6022	Eugene City of	1.18%	6	507
85	88	40614	Alabama Municipal Elec Authority	1.19%	8	670
86	87	11501	Magic Valley Electric Coop Inc	1.23%	3	244
87	86	17839	Springfield City of	1.23%	2	162
88	85	20847	Wisconsin Electric Power Co	1.37%	85	6,194
89	84	19497	United Illuminating Co	1.54%	20	1,300
90	83	590	Anaheim City of	1.56%	8	514
91	82	11843	Maui Electric Co Ltd	1.56%	3	192
92	81	195	Alabama Power Co	1.58%	172	10,910
93	80	15296	New York Power Authority	1.60%	51	3,180
94	79	11018	Lincoln Electric System	1.62%	12	741

APPENDIX C - EIA FORM 861 ENERGY EFFICIENCY PROGRAM DATA FOR 2002 - MW SAVINGS						
Rank-Low to High	Rank - High to Low	Code	Name	EE MW savings for 2002 as percent of annual MW peak load of utility	2002 Demand Savings from EE Programs (MW)	2002 Peak Demand (MW)
95	78	4180	Connecticut Mun Elec Engy Coop	1.63%	6	368
96	77	19390	UGI Utilities, Inc	1.63%	3	184
97	76	1015	Austin Energy	1.65%	37	2,247
98	75	12745	Modesto Irrigation District	1.67%	10	600
99	74	6198	Farmers' Electric Coop, Inc	1.69%	1	59
100	73	15700	Rayle Electric Membership Corp	1.72%	1	58
101	72	13050	Mountain Parks Electric, Inc	1.79%	1	56
102	71	12260	Mecklenburg Electric Coop, Inc	1.82%	2	110
103	70	11256	Loveland City of	1.89%	2	106
104	69	16060	Riverland Energy Cooperative	1.96%	1	51
105	68	18488	Taunton City of	1.99%	3	151
106	67	14170	Orcas Power & Light Cooperative	2.00%	1	50
107	66	1251	Barron Electric Cooperative	2.04%	1	49
108	65	5070	Delaware Electric Coop Inc	2.07%	5	242
109	64	7679	Griffin City of	2.22%	2	90
110	63	19790	Verendrye Electric Coop Inc	2.22%	2	90
111	62	20997	Yellowstone Valley Elec Co-op	2.22%	1	45
112	61	8210	Hart Electric Member Corp	2.33%	3	129
113	60	13664	Norris Public Power District	2.48%	3	121
114	59	4147	Concord Town of	2.50%	1	40
115	58	16674	Satilla Rural Elec Member Corporation	2.52%	6	238
116	57	14401	Palo Alto City of	2.73%	5	183
117	56	2001	Boone Electric Cooperative	2.86%	3	105
118	55	20963	Woodruff Electric Coop Corp	2.86%	3	105
119	54	7570	Great River Energy	2.87%	64	2,230
120	53	207	Alameda City of	2.99%	2	67
121	52	20413	Mountrail-Williams Elec Coop	3.13%	1	32
122	51	13781	Northern States Power Co	3.19%	211	6,605
123	50	4704	D S & O Rural E C A, Inc	3.23%	1	31
124	49	7489	Grand Rapids Public Util Comm	3.33%	1	30
125	48	17868	St Croix Electric Cooperative	3.45%	1	29
126	47	118	Adams Rural Electric Coop, Inc	3.70%	1	27
127	46	2008	Boulder City City of	3.85%	2	52
128	45	5575	East Grand Forks City of	3.85%	1	26
129	44	925	Ashley Chicot Elec Coop, Inc	4.35%	1	23
130	43	5780	Elkhorn Rural Public Pwr Dist	4.35%	3	69
131	42	40290	Tri-County Rural Elec Coop Inc	4.55%	2	44
132	41	13798	Northwest Iowa Power Coop	4.67%	7	150
133	40	5202	Dixie Electric Membership Corp	4.70%	18	383
134	39	3292	Central Vermont Pub Serv Corp	4.78%	20	418
135	38	3498	Chippewa Valley Electric Coop	5.00%	1	20
136	37	3314	Chariton Valley Elec Coop, Inc	5.56%	1	18
137	36	14600	Payson City Corporation	5.56%	1	18
138	35	21075	Y-W Electric Assn Inc	6.02%	8	133
139	34	7149	Gering City of	6.67%	1	15
140	33	108	Adams-Columbia Electric Coop	6.96%	8	115
141	32	40289	Claverack Rural Elec Coop, Inc	7.32%	3	41

APPENDIX C - EIA FORM 861 ENERGY EFFICIENCY PROGRAM DATA FOR 2002 - MW SAVINGS						
Rank-Low to High	Rank - High to Low	Code	Name	EE MW savings for 2002 as percent of annual MW peak load of utility	2002 Demand Savings from EE Programs (MW)	2002 Peak Demand (MW)
142	31	9200	Ilion Village of	7.69%	1	13
143	30	12265	Medford City of	7.69%	2	26
144	29	4362	Corn Belt Energy Corporation	9.01%	10	111
145	28	5021	Delaware County Elec Cooperative, Inc	9.09%	1	11
146	27	9750	Jo-Carroll Energy Coop Inc	9.09%	2	22
147	26	18087	Sterling Town of	9.09%	1	11
148	25	40165	Dixie Escalante R E A, Inc	9.26%	5	54
149	24	17561	South Plains Electric Coop Inc	9.56%	24	251
150	23	6395	Flathead Electric Coop Inc	9.89%	26	263
151	22	10539	La Plata Electric Assn, Inc	10.42%	15	144
152	21	16549	Salamanca City of	10.53%	2	19
153	20	1062	BARC Electric Cooperative, Inc	11.11%	4	36
154	19	5056	Denison City of	11.11%	3	27
155	18	7787	Gunnison County Elec Assn.	11.11%	3	27
156	17	17900	Saint Peter City of	11.11%	2	18
157	16	18280	Sulphur Springs Valley E C Inc	11.45%	15	131
158	15	9417	Interstate Power and Light Co	12.14%	376	3,097
159	14	9209	Illinois Rural Electric Coop	12.90%	4	31
160	13	17577	South Sioux City City of	12.90%	4	31
161	12	14426	Panhandle Rural El Member Assn	13.04%	6	46
162	11	19951	Wadsworth City of	13.11%	8	61
163	10	13610	Niobrara Valley El Member Corp	14.29%	4	28
164	9	7303	Glidden Rural Electric Coop	15.38%	2	13
165	8	13480	New Prague Utilities Comm	15.38%	2	13
166	7	2442	Bryan City of	15.75%	40	254
167	6	5841	Ely City of	16.67%	1	6
168	5	20472	Wharton County Elec Coop, Inc	17.14%	6	35
169	4	40219	United Electric Coop, Inc	17.65%	6	34
170	3	4632	Cuming County Public Pwr Dist	19.23%	5	26
171	2	20136	Waseca City of	20.00%	3	15
172	1	2182	Breckenridge City of	25.00%	2	8

APPENDIX D

APPENDIX D - Summary of Year 2002 Energy Efficiency Program mWh and MW Savings from EIA Form 861 Data Base													
Utility Code	Utility	2002 Energy Efficiency Program mWh Savings	2002 Utility mWh Sales	EE Savings As % of Annual 2002 kWh Sales	Rank (where "1" is highest)	2002 Peak Demand Savings (in MW) from Energy Efficiency Programs	2002 System Peak Demand (MW)	%	Rank	2002 Energy Efficiency Program Spending ($)	2002 Utility Retail Revenues	Energy Efficiency Spending as a Percent of Annual Revenues	Rank
6452	Florida Power & Light	206,945	95,542,625	0.22%	82/242	117	19,219	0.61%	118/172	147,996,000	$7,027,748,000	2.11%	67/483
6455	Progress Energy Florida	26,489	36,859,347	0.07%	121/242	38	9,045	0.42%	128/172	39,053,000	$2,724,244,000	1.43%	106/483
7801	Gulf Power	12,614	10,771,897	0.12%	104/242	8	2,454	0.33%	137/172	7,150,000	$658,659,000	1.09%	145/483
9617	Jacksonville Electric Authority	5,105	11,925,601	0.04%	141/242	6	2,607	0.23%	146/172	1,103,000	$675,597,000	0.16%	375/483
18454	Tampa Electric	18,800	17,925,140	0.10%	108/242	11	3,634	0.30%	141/172	16,558,000	$1,488,940,000	1.11%	144/483
			173,024,610								$12,575,188,000		
* NOTE: Data for Orlando Utilities Commission and Florida Public Utilities Co. was not included in the EIA Form 861 Database.													

APPENDIX E

IN RE: **DOCKET NO. 17687-U: GEORGIA POWER COMPANY'S 2004 APPLICATION FOR AN INTEGRATED RESOURCE PLAN**

DOCKET NO. 17688-U: SAVANNAH ELECTRIC AND POWER COMPANY'S 2004 APPLICATION FOR AN INTEGRATED RESOURCE PLAN

FINAL ORDER

Date Submitted: July 2, 2004 Date Decided: July 9, 2004

APPEARANCES

For Georgia Power Company: Kevin C. Greene, Esq., Melissa L. Pignatelli, Esq., Troutman Sanders; **For Savannah Electric and Power Company**: Leamon R. Holliday, III, Esq., Bouhan, Williams and Levy; **For the Commission Staff**: Jeffrey C. Stair, Esq. Administrative Procedures Attorney, and Helen O'Leary, Administrative Procedures Attorney; **For the Consumers' Utility Counsel Division**: John Z. Wu, Staff Attorney; **For the Georgia Industrial Group**: Randall Quintrell, Esq.; **For the Georgia Textile Manufacturer's Association**: Peyton S. Hawes, Esq.; **For Calpine Corporation:** Michael S. Bradley, Esq., and Charles B. Jones, III, Esq., Sutherland, Asbill & Brennan; **For Southern Alliance for Clean Energy, Inc.:** James J. Presswood, Jr., Esq., Staff Attorney; For **Alliance to Save Energy:** Mr. Harry Misuriello; For **Georgia Environmental Facilities Authority**: Erin Kelley, Esq.; **For Homeowners Opposing Powerline Encroachment**: Richard N. Hubert, Esq., Chamberlain, Hrdlicka, White, Williams & Martin; **For Resource Supply Management**: Mr. Jim Clarkson; **For Georgia Interfaith Power and Light**: J. Renee' Kastanakis, Esq.; Reverend Woody Bartlett; and **For Live Oaks Company, LLC**: Mr. John S. Ellis.

BY THE COMMISSION:

I. STATEMENT OF PROCEEDINGS

On January 30, 2004, Georgia Power Company ("Georgia Power" or "GPC") and Savannah Electric and Power Company ("Savannah Electric") (collectively referred to herein as "Companies") separately submitted to the Commission applications for Integrated Resource Plans ("IRPs" or "Plans") for approval pursuant to O.C.G.A. § 46-3A-1 *et seq.* ("IRP Act" or "Act"). The Georgia Public Service Commission ("Commission") issued a Procedural and Scheduling Order on March 5, 2004, finding it appropriate and administratively convenient to hold concurrent and consolidated hearings in these dockets. No party entered an objection to the consolidation of the cases. These proceedings were declared to be contested cases as the term is defined in O.C.G.A. § 50-13-13 and were also held to encompass complex litigation pursuant to O.C.G.A. § 9-11-33(a).

The Procedural and Scheduling Order directed the Companies, at a minimum, to address those issues that are required by the IRP Act and Commission Rule 515-3-4 ("IRP Rules"), as well as any directives issued for the Companies to follow in the 2001 IRP cases.[1] In addition to the issues that traditionally are included in an IRP case, the Commission sought input from interested parties whether existing Utility Rule 515-3-4-.04(3), Request for Proposals Procedure for Long-Term New Supply–Side Options, should be modified to provide in greater detail the manner in which new supply side resources are to be requested, evaluated and presented to the Commission for certification.

In accordance with O.C.G.A. § 46-3A-5(c), the Commission established fees for review of the IRPs within sixty days of the filing of the applications. The Commission concluded that $143,060.00 was the appropriate fee for Georgia Power Company,[2] and $61,311.00 for Savannah Electric.[3] On March 16, 2004, Georgia Power and Savannah Electric remitted the established fee amount, thereby making the statutory deadline for this proceeding to be July 14, 2004.

Pursuant to statute, the Commission Staff ("Staff") and the Consumer Utility Counsel Division ("CUCD") of the Governor's Office of Consumer Affairs were parties to these dockets. Applications for Intervention were filed as follows:

> Docket No. 17687–U: Resource Supply Management ("RSM") intervened on February 18, 2004; Georgia Industrial Group ("GIG") intervened on February 19, 2004; Georgia Textile Manufacturers Association ("GTMA") intervened on February 20, 2004; Calpine Corporation ("Calpine") intervened on February 25, 2004; Georgia

1 See *Final Order*, Docket Nos. 12499-U, 13305-U and 13306-U, filed on July 17, 2001.
2 Docket No. 17687-U, *Order Establishing Fee for Georgia Power Company's Application for Approval of the 2004 Integrated Resource Plan*, filed on March 22, 2004.
3 Docket No. 17688-U, *Order Establishing Fee for Savannah Electric and Power Company's Application for Approval of the 2004 Integrated Resource Plan*, filed on March 22, 2004.

Environmental Facilities Authority ("GEFA") intervened on February 25, 2004; Southern Alliance for Clean Energy ("SACE") intervened on March 5, 2004;[4] Live Oaks Company, LLC intervened on March 26, 2004; Alliance to Save Energy ("ASE") intervened on April 16, 2004; Georgia Interfaith Power and Light ("GIPL") intervened on April 16, 2004; and Homeowners Opposing Powerline Encroachment, Inc. ("HOPE") intervened on April 19, 2004.

Docket No. 17688-U: Calpine intervened on February 25, 2004; SACE intervened on March 5, 2004;[5] Live Oaks Company, LLC intervened on March 26, 2004; and ASE intervened on April 16, 2004.

No party was denied intervention during the proceedings.[6]

On March 5, 2004, and again on May 25, 2004, the Commission filed amendments to its Procedural and Scheduling Order. Both sets of amendments were not substantive in nature, but, rather, were the result of the Commission's need to modify the dates on which the hearings were to be held and filings were to be made.

The Commission conducted the hearings in three phases in this matter. During the first phase of the hearings, the Companies presented their direct cases on April 19, 2004, and April 20, 2004, through one panel of witnesses comprised of Mr. Richard A. White. Mr. Larry R. White, Mr. Jeffrey A. Burleson, and Mr. Garey C. Rozier.[7]

On May 25, 2004, the Commission Staff presented a panel of witnesses setting forth its positions in these dockets. This panel consisted of Mr. Mark W. Crisp, Mr. Jerry W. Smith, Mr. Evan D. Evans, Ms. Kathleen F. Best, Mr. Daniel R. Cearfoss, Jr. and Mr. Phil M. Hayet. GIG and GTMA co-sponsored two witnesses, Mr. Jeffry Pollock and Mr. John A. Mallinckrodt, who testified on this same date, with Mr. Timothy Eves testifying on behalf of Calpine in between the presentations of the two GIG/GNG witnesses.

A witness panel comprised of Mr. Richard F. Spellman and Mr. Harry Misuriello also testified on behalf of ASE on May 25, 2004, and on May 26, 2004, as well, followed by a panel of three witnesses for SACE that consisted of Mr. James Presswood[8], Ms. Rita

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[4] In the Georgia Power IRP docket, an Amended Application for Leave to Intervene was filed by SACE on May 20, 2004.

[5] Also on May 20, 2004, an Amended Application for Leave to Intervene was filed by SACE in the Savannah Electric IRP docket.

[6] Although Mr. John S. Ellis intervened on behalf of Live Oaks Company, LLC, no appearance at the hearings was made by Mr. Ellis on behalf of this party.

[7] Both Mr. Burleson and Mr. Larry R. White are employed directly by Georgia Power. Mr. Richard A. White is employed by Savannah Electric. Mr. Rozier is employed by Southern Company Services. See Pre-filed direct testimony of the Companies' panel of witnesses, page 1.

[8] Mr. Presswood testified as a subject matter expert during the hearings and also served as SACE's counsel in this proceeding.

Kilpatrick, Mr. William Prindle.[9] This second phase of the hearings concluded after the testimony on behalf of a witness sponsored by GIPL, Ms. Melissa Heath, was provided.

Thereafter, during the third and final phase of the hearing that was held on June 28, 2004, the Companies presented rebuttal testimony through the same panel of witnesses that previously testified to support their direct cases.

At the conclusion of the hearings in these dockets, closing arguments and/or proposed final orders were filed by the Companies, ASE, Calpine, RSM, Staff, and the CUCD on July 1, 2004, or on July 2, 2004, as permitted by the Commission.

On July 9, 2004, at a Special Administrative Session, the Commission considered the positions of the various parties and rendered decisions on the Companies' respective IRPs.

In conjunction with doing so, the Commission hereby adopts in this Final Order, with modifications and further directives, the IRPs filed by Georgia Power and Savannah Electric. In doing so, the Commission sets forth in this Order further direction to Georgia Power and Savannah Electric for further reporting and analysis to be performed and provided to the Commission prior to or in conjunction with their next IRP filings, amendments or applications for de-certification. Finally, this Order issues directives by the Commission that are to be followed by its Staff in order to facilitate a Demand Side Management Working Group and initiate the process required for amending the agency's existing Utility Rule 515-3-4-.04(3), Request for Proposals Procedure for Long-Term New Supply–Side Options.

II. JURISDICTION AND AUTHORITY

Georgia Power and Savannah Electric are public electric utilities serving retail customers within the State of Georgia. Georgia Power and Savannah Electric are two of the five retail operating companies of which the Southern Company system is comprised. This Commission has jurisdiction over Georgia Power's and Savannah Electric's IRPs pursuant to O.C.G.A. § 46-2-1 et seq., generally, and the IRP Act in particular.

The IRP Act requires the Companies to file Integrated Resource Plans at least every three years.[10] The Companies' obligations with respect to the information that is filed is set forth pursuant to criteria identified in the Commission's IRP Rules. A "plan" is defined in the Act as an Integrated Resource Plan that contains the utility's: electric demand and energy forecast for at least a 20-year period; program for meeting the requirements shown in its forecast in an economical and reliable manner; the analysis of all capacity resource

[9] Although Ms. Sara Barczak was identified on the pre-filed direct testimony as a witness who would be testifying on behalf of SACE, she was unavailable to appear at the hearing to answer questions about the panel testimony. As such, the panel was permitted to proceed with its testimony in her absence.
[10] O.C.G.A. § 46-3A-2.

options, including both demand-side and supply-side options; and the assumptions used and the conclusions reached with respect to the effect of each capacity resource option on the future cost and reliability of electric service. The Plan also must:

(A) Contain the size and type of facilities which are expected to be owned or operated in whole or in part by such utility and the construction of which is expected to commence during the ensuing ten years or such longer period as the Commission deems necessary and shall identify all existing facilities intended to be removed from service during such period or upon completion of such construction;

(B) Contain practical alternatives to the fuel type and method of generation of the proposed electric generating facilities and set forth in detail the reasons for selecting the fuel type and method of generation;

(C) Contain a statement of the estimated impact of proposed and alternative generating plants on the environment and the means by which potential adverse impacts will be avoided or minimized;

(D) Indicate, in detail, the projected demand for electric energy for a 20-year period and the basis for determining the projected demand;

(E) Describe the utility's relationship to other utilities in regional associations, power pools, and networks;

(F) Identify and describe all major research projects and programs which will continue or commence in the succeeding three years and set forth the reasons for selecting specific areas of research;

(G) Identify and describe existing and planned programs and policies to discourage inefficient and excessive power use; and

(H) Provide any other information as may be required by the Commission.[11]

The Commission is required under O.C.G.A. § 46-3A-2 to make determinations as to the adequacy of the IRPs and to ensure that the utilities' Plans have appropriately addressed numerous matters. There must be a determination that the forecast requirements contained in the Plan are based on substantially accurate data and an adequate method of forecasting.[12] The Commission must also find that the Plans identify and take into account any present and projected reductions in the demand for energy that may result from

[11] O.C.G.A. § 46-3A-1(7).
[12] O.C.G.A. § 46-3A-2(b)(1).

measures to improve energy efficiency in the industrial, commercial, residential, and energy-producing sectors of the state.[13]

Further, the Commission must determine whether the Plans adequately demonstrate the economic, environmental, and other benefits to the state and to customers of the utilities, associated with the following possible measures and sources of supply:

(A) Improvements in energy efficiency;
(B) Pooling of power;
(C) Purchases of power from neighboring states;
(D) Facilities that operate on alternative sources of energy;
(E) Facilities that operate on the principle of cogeneration or hydro-generation; and
(F) Other generation facilities and demand-side options.[14]

After hearings have been conducted on a Plan, the Commission may approve the IRP; approve it subject to stated conditions; approve it with modifications; approve it in part and reject it in part; reject the plan as filed; or provide an alternate plan, upon determining that this is in the public interest.[15]

With regard to its rule-making authority to enact or modify regulations regarding the manner in which new supply-side resources are to be attained for the Companies' retail customers, the Georgia Legislature conferred upon the Commission a general blanket of authority under which it may enact those rules necessary to execute the functions that it has been delegated.[16] Along this avenue of authority, the Commission included in the Procedural and Scheduling Order a request for information from parties in order to determine whether its existing Utility Rule 515-3-4-.04(3), Request for Proposals Procedure for Long-Term New Supply–Side Options, should be enhanced and, if so, in what manner. In furtherance of this purpose, the agency's stated areas of interest included:

(a) The procedures for the issuance of any Request for Proposals (RFP)
(b) The contents of the RFP
(c) The need for and role of an Independent Evaluator to oversee the RFP process
(d) Evaluation Criteria and Procedures including selection process for a competitive tier and/or short list of bidders
(e) Codes of conduct for participation in an RFP
(f) The manner in which Information will be made available to bidders
(g) Exceptions, if any, to the RFP procedures

[13] O.C.G.A. § 46-3A-2(b)(2).
[14] O.C.G.A. § 46-3A-2 (b)(3).
[15] GPSC Utility Rule 515-3-4-.01(2).
[16] O.C.G.A. § 46-2-30.

(h) The inclusion of a "Self-build" option by a Georgia-regulated utility, in the RFP process; and

(i) A description of, and the use that is to be made of, a "Target Price" in the RFP evaluation process.[17]

III. FINDINGS OF FACT AND CONCLUSIONS OF LAW

To ensure that the competing interests of all parties were properly considered, the Commission has carefully analyzed all evidence of record including the testimony given and the various exhibits entered by all the parties. As set forth hereinafter, the Commission makes findings of fact and conclusions of law[18] based on the evidentiary record created, taking into consideration any joint proposals for a resolution to an issue raised by this agency.

A) REVIEW AND EVALUATION OF THE INTEGRATED RESOURCE PLANS FILED BY GEORGIA POWER COMPANY AND SAVANNAH ELECTRIC AND POWER COMPANY[19]

1) LOAD FORECAST

In Volume 1A, Table 4.2, on page 9 of the Technical Appendix[20] to Georgia Power Company's 2004 IRP filing, the load forecast for the years 2004 through 2023 is set forth as it pertains to the Companies' service areas as well as the Southern System as a whole. With regard to the demand and energy forecasts that are used to project load for the Companies, the Staff panel of witnesses was the only one to comment on each of them. A review of the testimony provided by Staff regarding the adequacy of the forecasts filed by Georgia Power and Savannah Electric is relevant to this Commission making at determination whether they should be approved as filed.

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[17] *Procedural and Scheduling Order*, March 5, 2004, p. 6.

[18] The areas of discussion included in the body of the Order in terms of Findings of Fact and Conclusions of Law speaks only to the areas of the Plans filed that were contested. Matters that were not disputed or previously were decided by the Commission in these dockets are referenced in the ordering paragraphs only.

[19] Due to the way the transcripts of the three phases of the hearing were prepared in these dockets, there is no way to identify specific pages in the transcripts when pre-filed testimony of any witness(es) is(are) referenced. As a consequence, all statements referenced as an authority in this Final Order will be cited from a party's pre-filed testimony, which, at the hearing, was accepted into the record as evidence.

[20] This information is contained in the Trade Secret version of the Georgia Power's filing.

a) Sufficiency of Load Forecasts

Georgia Power Company

In conducting its analysis, Staff noted that Georgia Power used econometric models developed in-house for the short-term forecasts (2004–2006), and a set of EPRI end-use models (REEPS, COMMEND and INFORM) for the longer-term forecasts (2007-2023). Georgia Power also used the EPRI model, HELM, to produce the demand forecast. The long-term models used are well accepted industry-wide, and Georgia Power performed an appropriate analysis of data input and calibration for each of these load forecast models. Staff acknowledged that some judgment was necessary in the selection of variables for all models, and that Georgia Power appeared to have made reasonable decisions for the Budget 2004 forecast, which was prepared during the spring of 2003.[21] The energy forecast is dependent on the input variables provided by Economy.com.

In its analysis of load, Georgia Power provided data that indicated a recent tendency for this company to over-forecast total company demand, with the errors ranging from approximately 1% to 7% on a weather adjusted basis[22]. However, the more recent interim forecasts appeared to have improved and were in the range of 1% to 4% error. Staff determined that these percentages of errors are in the range of what is acceptable.

A similar review of the weather adjusted comparisons for total company energy[23] revealed that on a total company basis, Georgia Power systematically also has over-forecasted energy usage. However, the forecast errors are within acceptable ranges of 3% to 5%, with more recent forecasts indicating improved accuracy with variances of approximately 1% to 3%.

Staff evaluated the weather adjusted energy forecasts by customer class[24] and concluded that forecast accuracy is within acceptable limits, with the potential exception of the industrial class. (Pre-filed Panel Testimony of Staff, p. 49). The industrial class energy forecast errors from the Budget 1999 through the Budget 2001 forecasts are in the range of 15% over-forecasted. The Budget 2002 forecast improved accuracy considerably to the 3% to 7% range. Georgia Power lost industrial customers from 1990 through 2003. Over the period, the number of industrial customers declined at the average annual rate of 2.9%. Georgia Power forecasted an average annual rate of decline for industrial customers of 1.6% for the period of 2004 through 2023. The industrial class represented approximately 24% of the total Georgia Power demand in 2003. A ratio has been projected by the Company to decline to about 20% in 2023. On

[21] Georgia Power performed weather-normalization for both energy and demand data in order to provide historically appropriate comparisons of forecasts to actual energy and demand.
[22] *Georgia Power's 2004 IRP Filing* Technical Appendix Volume 2, Section 9, pages 189- 190.
[23] *Georgia Power's 2004 IRP Filing* Technical Appendix Volume 2, Section 9, page 185.
[24] *Georgia Power's 2004 IRP Filing* Technical Appendix Volume 2, Section 9, pages 185-188.

an energy basis, the industrial class represented about 35% in 2003, a ratio is projected to decline to 30% in 2023.[25]

Staff observed that Georgia Power estimated and adjusted the industrial class to account for a trade secret concern that has the potential to be realized in the upcoming years. Id. at 50. Minor adjustments start in 2007 and major adjustments occur in 2008 and beyond. It is likely these estimates will change when trade secret concerns had by the Company are decided one way or another. Secondary economic effects of these trade secret concerns were included in the residential and commercial classes also.

In looking at Georgia Power's forecast, which was prepared in the spring of 2003, Staff concluded that there have been potential signs of some economic recovery in the southeastern United States, which make it prudent to examine a case where some growth in the industrial class resumes before 2008. In order to examine this scenario, Staff recommended a sensitivity case to be performed, that in addition to other data changes, increased the total system load and demand by 1% over the Georgia Power Budget 2004 forecasts. Id. at 51. This case represents the possibility that some economic recovery is now in progress but had not yet been picked up in the Georgia Power forecasting models.

Necessity for Update to Georgia Power's Existing Load Forecast

When doing cross-examination of the Companies' direct testimony, Staff inquired as to whether there would be an updated load forecast filed with the Commission by Georgia Power for use in the upcoming 2004 rate cases. (Transcript (Tr.) 47.) Witness Jeffrey Burleson indicated that one had not been prepared and there was no intention to file one. (Tr.48.) During the rebuttal phase of the hearing, Staff made additional inquiries during cross-examination through which the genuine need for the Commission to obtain a new or updated load forecast from Georgia Power was explored. (Tr.984-997.) Among the points made by Staff that would support a more current load forecast being filed by Georgia Power included the fact that some of the data underlying the one in the IRP was from at least January 2003, maybe earlier (Tr.991-992); the growth predicted in the forecast for the various retail customer sectors may have far exceeded actual growth as per recent Company pronouncements (Tr.986-991); and the significant role that a load forecast plays in a rate case, which Georgia Power filed on July 1, 2004, seeking increased rates. (Tr.990-994.)

Through its responses, Georgia Power witness Burleson disputed any need for an updated load forecast to be filed. He indicated that, as per the Final Order in the last IRP case (Docket No. 13305-U), Georgia Power only had to notify the Commission if a new load forecast was developed by the Company. (Tr.980.) Mr. Burleson indicated that information tracking any variances in the load forecast is routinely made available to management of the Company in the form of reports. (Tr.982.)

[25] Georgia Power Company's Technical Appendix, Vol. 2, Section 2, page 22.

In furthering his opposition to preparing an updated forecast based on actual data becoming available since it was prepared in early 2003, this witness contended that the actual data, once weather normalized, would result in the forecast being lower than what it is presently. (Tr.994-995.) While there may be actual data that shows higher sales for a customer class, Mr. Burleson seemed to infer that such increases were somehow offset by lower than predicted sales in the forecast for another class. (Tr.986-988)

When asked about the importance of its load forecast in terms of its upcoming rate case, Mr. Burleson did concede that there would be overearnings by a utility if its revenue requirements were to be spread across a customer base that was lower than what was forecasted. (Tr.992-994.) In light of this and other inquiries made by Staff, Mr. Burleson stood firm in his position that a load update was not necessary.

While the Commission understands the position of Georgia Power in this regard, it shares Staff's concern about Georgia Power's decision that a more current load forecast will not be made available for the rate case that is to be decided later this year. While Mr. Burleson possesses a great deal of credibility as a witness, the Commission would be derelict in its duty if it were merely to rely on his representations as to the impact that the availability that actual data has had on the forecast, and not to direct that this updated information be filled with this agency. Since the information necessary to update the existing forecast appears to be readily available to representatives of the Company, it should not be any hardship for the Company to do an update to its load forecast.

It also must be noted that the need for an updated load forecast is compounded by the fact that a cost of service study has been done by rate schedule for the first time in the 2004 rate case. If actual sales data deviates from that which is embedded in the existing load forecast, it could result that certain customer classes will have rates set for them that subsidize rates that will be set for consumers that take service under another class's rates. To eliminate any far-reaching ramifications from this occurring, it is imperative that by no later than August 15, 2004, Georgia Power must file an updated load forecast and budget comparison information with the most up-to-date information as of March 31, 2004.

Savannah Electric and Power Company

Staff noted that Savannah Electric prepared short-term (2004–2006) econometric models for most classes. (Pre-filed Panel Testimony of Staff, p. 53). For its industrial class, the company tabulated individual customer forecasts to obtain the forecast of the entire class. Savannah Electric used a set of EPRI end-use models (REEPS, COMMEND and INFORM) for the longer-term forecasts (2007-2023). The company also used the EPRI model, HELM, to produce the demand forecast. The long-term models are well accepted industry-wide and Savannah Electric has performed the appropriate analysis of data input and calibration for each of these models.

Like its sister company, Georgia Power, Savannah Electric performed weather-normalization for both energy and demand data in order to provide historically accurate comparison of forecasts to actual energy and demand. It provided data indicating forecast errors that are in the range of approximately 1% to 5% on a weather adjusted basis, with the exception of the industrial energy.[26] However, a more recent interim Budget 2003 forecast resulted in errors of 1% to 3%. As with Georgia Power, this range of errors is acceptable, and the company's demand forecast is also within standard tolerances. Id.

For the industrial energy forecast comparisons on a weather adjusted basis, Savannah Electric over-projected energy sales by as much as 15% in the most recent forecast. [27] Staff noted that it was advisable to attempt additional econometric or other modeling for the short-term industrial energy sector to see whether any improvement could be achieved since this class represented approximately 20% of the total sales in 2003. Id.

Staff ultimately concluded that Savannah Electric's short-term models fit the historical data and appear to be reasonable and consistent with trends, with the possible exception of the industrial sales forecast, and that the company's demand projections were reasonable. Id. at 54.

Necessity for Update to Savannah Electric's Existing Load Forecast

While Savannah Electric witness Richard White was not asked the same questions about the load forecast as Georgia Power witness Jeffrey Burleson, similar concerns are present about the age of the existing load forecast exist since Savannah Electric also will be filing a rate case later this year. Irrespective of the concern that this utility does not share its sister company's situation in terms of doing a cost of service by individual rate, Savannah Electric likewise is directed to update its load forecast and budget for filing with the Commission based on the relevancy of such information to the rates that will be set next year as a result of its 2004 rate case filing.

b) Recommendations Regarding the Companies' Load Forecast

Based upon the evidence in the record, the Commission finds and concludes that it is appropriate to approve the demand and energy forecasts as filed by Georgia Power and Savannah Electric without modification to any projections to any customer class. In doing so, however, the Commission does find the concerns about the vintage of the forecast information, which is old and can easily be updated by actual data. Providing this more current information is essential because this information will play a critical role in the Company's upcoming rate case. As such, the Commission further finds and concludes that Georgia Power and Savannah Electric shall each update its forecasts utilizing actual data through March 31, 2004. Once updated, these forecasts shall be filed by the Companies on or before August 16, 2004.

[26] *Savannah Electric's 2004 IRP Filing,* Technical Appendix, Section 1, pages 46-47.
[27] Id. at 46.

2) RELIABILITY—AUTHORIZED TARGET RESERVE MARGIN

In an effort to plan for a reliable system, allowances for capacity resources in excess of a utility's projected peak demand requirement are made for the purpose of recognizing that generating units can fail randomly, and load projections typically have some measure of forecast error. This commitment to have excess capacity provides a reasonable assurance that the utility will always have resources available to serve its load. A system with too large of a reserve margin will tend to have high revenue requirements because it will overbuild capacity on its system. A system with too small of a reserve margin will have to depend on purchases from the wholesale market that can be quite high at times of peak demand, once again resulting in high revenue requirements. The goal of a reserve margin study is to determine the level at which revenue requirements are the lowest for a given level of reserve margin. This results in a well-planned, reliable, and cost-effective utility system.

In the 2004 IRP, the Companies have proposed that the ultimate system reserve margin should be set at 13.5% for the first 3 years, and then 15% for the years after that. As support underlying this recommendation, Southern Company Services conducted a reserve margin study[28] that updated the one that was previously done in 1999. The conclusion reached in both studies was that 15% is the appropriate level of reserve margin for the Southern Company System. In the 2001 IRP, Georgia Power cited to the 1999 study as its basis for relying on 15% as its target reserve margin level for the Southern Company System.[29] Also, in the 2001 IRP, Georgia Power proposed a lower System reserve margin level for the short-term, arguing that it was an acceptable level for the first three years of the IRP study period. Ultimately, the Commission accepted these target reserve margin levels for the 2001 IRP.

For purposes of its 2004 IRP reserve margin study, Southern Company Services relied on its Monte Carlo Frequency and Duration Model "MCFRED," to develop the relationship between system revenue requirement and reliability based on Expected Unserved Energy (EUE). The cost of EUE is the payment which one customer is willing to make to avoid an hour of sudden, unexpected, firm load curtailment on a hot, summer afternoon. The goal of the reserve margin study is to determine the appropriate level of reserve margin such that total system revenue requirement is minimized, considering the cost of generating to serve load, the cost to build new capacity and the cost of expected unserved energy that might result from not having built quite enough capacity to serve load. In the 2004 filing, the reserve margin study explains that several changes were made in the modeling methodology to more closely represent the operational characteristics of the system.

Base on the results of the reserve margin study and the resulting analysis done by Staff, the Commission believes that the Companies' proposed system reserve margin

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[28] See Technical Appendix Volume 1B of Georgia Power's filing.
[29] *Staff Panel Testimony* filed May 11, 2001, Docket Nos. 13305 and 13306, page 18 at line 5.

recommendation, which includes a risk adjustment,[30] should be approved in this IRP. Their recommendation appears to be quite reasonable based on a number of facts. These include an acknowledgement that a 15% reserve margin is consistent with what other utilities typically use, that presently there is considerable excess merchant capacity in the southeast region and that Southern Company as a whole is itself in an over-capacity situation.

As such, the Commission finds and concludes that the Companies' proposed 13.5% target reserve margin for the 2004 – 2006 time frame shall be set at 13.5%, with 15% to be used for the remainder of the study period. It is further directed that, in future reserve margin studies, as with all evaluations that are conducted as part of an IRP, consistent modeling data should be used to the greatest extent possible.

3) SUPPLY-SIDE MANAGEMENT

a) Generation Expansion Plan

Georgia Power Company's Resource Planning Process

Georgia Power's base case supply-side Resource Plan, which covers the 20-year period from 2004 through 2023, identifies the need for new resources to begin in 2009 and continue every year thereafter through 2023. In each of those years, Georgia Power proposes to add various combinations of gas-fired combustion turbine ("CT") and combined cycle ("CC") units. Between 2004 and 2008, the Companies' have already made commitments to satisfy their resource needs based on prior IRPs, through reduction in the peak demand forecast, and in accordance with Commission certification proceedings that took place in December 2000 and December 2002.

The December 2000 certification allowed Georgia Power to proceed with the following resources:[31]

> 1,800 MW of purchased power coming online in the 2003 and 2004 time period based on purchases from Southern Power Company. (The Franklin and Harris Power Purchase Agreements (PPAs).
>
> 12 MW upgrades to the Goat Rock Hydro units

[30] On page 48 of the Risk Margin study, Southern Company Services reported that the optimal reserve margin for the system is actually lower than the 15% reserve margin that the Companies have recommended. However, through a series of additional analyses, risk factors were derived and added to the lower reserve margin result. The net result of these risk factors is that additional capacity has to be planned for the system to satisfy the higher reserve margin targets. It should be noted that the use of risk adjustments is not unusual when they are applied in such a way that the utility may meet other goals in addition to those required by the basic methodology. Staff determined that planning for a reliable system in an uncertain environment was an adequate reason in these filings to use a risk adjustment.

[31] *Georgia Power Company's 2004 IRP* Main Document, pages 1-7.

The December 2002 certification included:

> 1,660 MW of purchased power coming online in 2005 based on purchases from Duke Energy Southeast Marketing, LLC and Southern Power Company.[32]

Savannah Electric's Resource Planning Process

Savannah Electric's base case supply-side resource plan also covers the same 20-year time frame and has identified the need for new resources to begin in 2009. Just as in the case of Georgia Power, after 2009, and through the remainder of the planning period, Savannah Electric's resource plan calls for the addition of CT and CC units. Based on decisions made in prior IRPs and approved in Commission certification proceedings (one in March 2000, and another in December 2002), Savannah Electric has already made commitments to satisfy its resource needs covering the period of 2004–2008.

In March 2000, the Commission certification allowed Savannah Electric to proceed with the following resources:[33]

> 200 MW of purchased power coming online in June 2002 based on purchases from Southern Power Company, from its Wansley Combined Cycle Plant. This is a 7.5 year PPA covering the period of June 2002 through December 2009.

The December 2002 certification provided approval for:

> 200 MW of purchased power coming online in June 2005 based on purchases from Southern Power Company, from its McIntosh Combined Cycle Plant.[34]
>
> The retirement of approximately 100 MW at Plant Riverside on May 31, 2005, based on the purchase of McIntosh unit.

Based upon the information filed by the Companies in their IRPs, the Commission finds and concludes that the Companies' respective Generation Expansion Plans appear to be adequate.

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[32] Since both Companies filed their IRPs on January 30, 2004, a joint application was made to the Commission on May 7, 2004, requesting direction to buy the two units, McIntosh 10 and 11, which were the subject of the purchase power agreements that they previously entered with Southern Power Company, and which the Commission certified in December 2002. The Commission issued this directive in an order filed on May 19, 2004, in Dockets 15392-U and 15393-U and will be considering the valuation of them as part of a rate case later this year.

[33] *Savannah Electric and Power Company's 2004 IRP* Main Document, pages 1-8.

[34] See Footnote Number 17.

b) Unit Retirement Study

In conjunction with its 2004 IRP filings, the Companies have considered whether it is prudent to consider for retirement any of their electric plants or the individual units located within them. In doing so, Georgia Power has requested that the Commission de-certify the Plant Atkinson CTs 5A and 5B, which total 80 MW of capacity, and which were retired from service on December 31, 2003. (Pre-filed Panel Direct of the Companies, page 7.) Upon examining whether Georgia's plans for the retirement of these two units are reasonable, Staff testified that they were. (Tr.485.) No other party addressed this issue with Georgia Power at the hearing.

A decision to extend the life of a unit at Plant Kraft has been made by Savannah Electric in its IRP filing. This utility previously had been planning for the retirement of the Kraft CT unit, which is a 17 MW combustion turbine that is capable of providing black start service. However, Savannah Electric since has performed further retirement evaluations (Pre-filed Panel Direct of the Companies, page 14) and is now recommending that the life of Kraft CT 17 MW be extended. Neither Staff (Pre-filed Staff Panel Direct Testimony, pages 43-44) nor any other party has opposed Savannah Electric's doing so.

Based on these considerations, the Commission finds and concludes that it is reasonable for Plant Atkinson CT's 5 A and 5B to be de-certified by Georgia Power Company. The Commission further finds and concludes that it is prudent for Savannah Electric to extend the planned life of the 17 MW Kraft CT unit that is capable of providing black starts and to remove it from further consideration for retirement.

c) Fuel Forecast

Staff expressed concern in its direct testimony that natural gas prices have risen sharply in the past year or two and seem to be forecasted to gradually trend lower from the currently high levels for a few years before returning to an upwardly trending pattern over the long term. (Pre-filed Staff Panel Direct Testimony, p. 16.) Unlike past history, as the natural gas prices decline in the next few years, none of the industry experts appear to expect prices to drop back to around $3.00/mmbtu again over the next 20 years. Id. For purposes of making a proper analysis of the IRP filings, Staff compared the Companies' base and high gas forecast to other forecasts including NYMEX and the Energy Information Administration's ("EIA") forecast. Based on its comparison, Staff concluded that the Companies' reference case forecast may be a little low. Id.

The Staff pointed out that price forecasts currently exhibited large fluctuations associated with many uncertainties in the markets. Id. at 15. The EIA 2003 Energy Outlook forecast of the fuel prices may be low given the more recent developments in the natural gas markets. The EIA revised these price forecasts upward in the EIA 2004 Energy Outlook published in December 2003. The gas price for electric generators for the Middle Atlantic region, as reported in the 2004 EIA Energy Outlook, was revised

upward by an average of 10.6% for the period 2004 to 2025. Id. at 54-55. For the short-term period 2004 to 2008, the average increase in the gas price forecast for the electric generators is 18.4%. Id. For the period of 2009 to 2025, the average annual price upward revision is about 8.4%. At the retail level, the EIA forecast for residential gas prices in the Middle Atlantic Region was revised upward by an average of 8.8% for the period of 2004 to 2008, and an average of 3.7% for the period of 2009 to 2023. Id. For commercial customers and industrial customers, the price forecast revisions are higher: commercial users: 2004-2008, 19.3%; 2009-2023, 10.3%; and industrial users: 2004-2008, 13.9%; 2009-2023, 9.8%. Id. Even though there is not full agreement with all of the Companies' data assumptions, none were determined by Staff to be completely unreasonable. (Pre-filed Staff Panel Direct Testimony, p. 15.)

Within the testimony of John Mallinckrodt, the Georgia Industrial Group and Georgia Textile Manufacturers Association expressed concern that GPC is planning to rely totally on natural gas for future resource additions. (Pre-filed Testimony of John Mallinckrodt, p. 2.) A primary basis for GPC's reliance on natural gas is an assumption that natural gas prices will drop due to increased imports of liquid natural gas ("LNG"). Id. Mr. Mallinckrodt pointed out that domestic supply is declining, as are imports from Canada, and that even assuming that all LNG that is projected to be imported through both existing, expanded and new terminals, LNG will still not significantly increase domestic gas supply. Id. at 5. GIG/GTMA argued that contrary to GPC's projection of declining natural gas prices in 2004 to 2009 timeframe, natural gas prices are not likely to change significantly relative to current high levels. Id. at 7.

The fuel forecasts of Georgia Power and Savannah Electric utilized in various parts of the IRP originated over a range of dates. For example, fuel prices used in some of the forecast models were based on the EIA 2003 Energy Outlook published in December 2002 (*Georgia Power's 2004 IRP Filing* Main Document, page 3-3; *Savannah Electric's 2004 IRP Filing* Technical Appendix, Section 1, page 76), and it appears that other fuel forecasts were derived for other analyses such as the Optimal Resource Mix Study.

Staff recommended that the Companies update and file prospectively their fuel forecasts on June 30th of each year. (Pre-filed Staff Panel Direct Testimony, p. 87.) As per Staff, the updates should include an assessment of how the conclusions and recommendations reached by the Commission in the most recent IRP order may need to be modified as a result of the updated forecasts. These updates should also include a comparison of the forecasts used in the previous IRP with the actual data for the current year. The Staff also recommended that the Commission consider continuing its previous order requiring Georgia Power and Savannah Electric to file load and fuel forecasts, together with detailed supporting information and analyses each year, rather than at the three year IRP intervals, in order to capture significant changes in the region. Id.

With regard to three of Staff's recommendations, the Companies argued that, pursuant to Commission Rule 515-3-4-.06(5), they already are already required to notify the Commission of any major changes in any condition that would impact resource

planning. (Pre-filed Panel Rebuttal of the Companies, page 41.) Georgia Power and Savannah Electric also are currently under the obligation to file with the Commission a copy of each load forecast update prepared by the Companies as soon as such update becomes available. Id. Similarly, since the Companies already currently file a copy of the Environmental Compliance Strategy each year, as well as filing a status report of their certified DSM programs, the obligation to make a further in this area would be burdensome and unnecessary, In sum, the Companies argued that Commission already has in place several mechanisms through which it can stay abreast of their resource planning process in between filed IRPs and additional filings to report on same would be redundant. Id.

The Commission is concerned about the volatility in the price of natural gas, the increasing cost of fuel, and the IRPs' long term reliance on natural gas. In order for this agency to adequately monitor the issues surrounding fuel that have developed in recent years and are expected to continue, the Commission finds and concludes that both Companies shall promptly notify the Commission of any changes in fuel price conditions, including external forecasts that may warrant development of a new utility price forecast. In imparting this information, Georgia Power and Savannah electric also shall advise the Commission of the impacts these changes may have on the long range IRP.

The Commission further finds and concludes that the Companies shall make available any fuel forecast update as soon as it is available. This information shall be provided as appropriate within each 6 month Progress Report to the Commission as required by Utility Rule 515-3-4-.05.

4) DEMAND SIDE MANAGEMENT

a) Demand Side Management Issues Raised by The Companies Proposals

Neither the IRP filing for Georgia Power nor the filing made by Savannah Electric contained any new Demand Side Management ("DSM") programs because, the Companies contended, none were found to be cost-effective by applying the screening tests specified in the Commission's rules and prior orders. (Pre-filed Panel Direct of the Companies, page 41.) Georgia Power and Savannah Electric have indicated that it remains appropriate for this Commission to use the Rate Impact Measure ("RIM") test as the final screening tool to determine whether a DSM measure should be implemented. Id. at 10 and 16. Both Companies also stated their intent to continue the Power Credit program, which was reauthorized by the Commission in its 2001 IRP order. Id. at 9 and 16.

Georgia Power also proposed to maintain its Low Income Weatherization Assistance Program and to continue existing energy information programs that provide customers

with cost-effective energy saving options. Id. at 10. Similarly, Savannah Electric has made the same proposal. Id. at 16.

1) Implementation of Additional Measures to Foster Energy Efficiency

a) Partnership with Energy Star®

Georgia Power and Savannah Electric indicated that in April 2004, they entered into a partnership with Energy Star®, through which appliances acknowledged as having a certain level of energy efficiency would be promoted by the Companies in ways such as providing consumers with manufacturers' coupons for energy efficient appliances with their bills. (Tr.1029.)

The Commission finds and concludes that both GPC and Savannah Electric shall continue to develop the partnership that it has entered into with Energy Star through which appliances acknowledged as having a certain level of energy efficiencies would be promoted by the Companies in ways such as providing consumers with manufacturers' coupons for energy efficient appliances with their bills.

b) Desire for Greater Levels of Customer Education

It was apparent to the Commission through comments made by public witnesses that most of them supported additional education regarding efficient use of electricity. Public witness Ms. Peggy Bartlett stated in relevant part that "[w]here I expected some folks to be quite resistant to suggestions that they change their personal habits with regard to lights, computers, small appliance, copy machines, . . . we have found extremely positive response. People want to know what to do. They are grateful for educational specifics of what they should do." (Tr.428.) Another citizen who made public comments, Ms. Elizabeth Mojica, stated that she was "disappointed in Georgia's lack of renewable energy sources and the poor education of consumers on energy conservation issues." (Tr.446.) Mr. John Heavener, also a public witness who gave up his personal time to come to the hearing, commented that "[a] part of that strategy could be encouraging commercial and residential consumers to utilize Energy Star® appliances and building products as well as instituting education campaigns on how to reduce the demand for energy." (Tr.458.)

The interest among consumers in making efficient use of electric energy also was addressed by Staff witness Evan Evans, who testified that helping people understand how to set programmable thermostats already located in their homes could itself be a program design, and that education along those lines incorporated into the informational program that Georgia Power already has in place would produce benefits. (Tr.521.) In terms of understanding how to exact energy efficiencies from current electric usage, ASE's witness, Dick Spellman, noted that the existence of market barriers resulted in most people lacking awareness of energy efficient technologies, which is why

educational programs like the one provided by Georgia Power through brochure information are greatly needed to educate the public. (Tr.849-850.)

Georgia Power and Savannah Electric stated on rebuttal that "[a]lthough [they] work with customers daily on how to use energy efficiently, the Companies are also willing to engage in additional customer education regarding DSM." (Company Panel Rebuttal testimony, page 7.) As support for this representation, the Companies noted a number of ways that they proposed to do so. The Companies further stated their willingness to more aggressively promote their willingness to conduct energy audits for customers upon request in an effort to raise customer awareness of the availability of this service. (Tr. 1027-1037.)

Based upon the foregoing, the Commission finds and concludes that the Companies shall initiate customer education programs through which they each will disseminate information to consumers about the efficient use of electricity. Georgia Power and Savannah Electric also shall more aggressively promote the availability of energy audits for interested customers.

c) Funding for Educational Initiatives

In order for Georgia Power and Savannah Electric to properly implement the customer education programs that they have been charged with initiating, the Commission finds and concludes that Georgia Power shall fund with no more than $2,000,000 annually an energy efficiency campaign that it shall implement to promote consumer awareness of those energy efficiency measures and practices that produce the greatest economic efficiency and benefit to a participant. Savannah Electric shall support a similar initiative with no more than $200,000 annually in funding to do so.

All of the funding authorized for these programs shall be directed to promoting education regarding those energy efficiency measures and practices that produce the greatest economic efficiency and benefit for the participant. In terms of outreach to achieve this goal, the Companies may use any recognized medium through which their customers could reasonably be expected to be reached with energy efficiency information, including, but not limited to, television advertisements, radio spots and advertisements in local newspapers and periodicals.

All such advertisements made through these mediums shall be for the exclusive purpose of promoting education in the area of energy efficiency and shall not serve as a forum to promote the Southern brand (or that of its subsidiaries) in any way, or to further other initiatives of the Companies outside of those contemplated herein. Television, radio and/or print ads shall provide as much information about managing electric usage as possible in the time/space allotted. A general understanding of electric energy efficiency and conservation should be able to be derived by the average viewer after viewing/listening to any advertisements. The theme of all advertisements should be strictly education-based. Any advertisements that the Commission, in its sole discretion,

finds not to be adequate for its intended purpose shall not be financed with monies allocated in this order for consumer education.

Copies of television ads, radio scripts and print advertisements containing information that is to be disseminated to the public shall first be provided to the Commission's Consumer Affairs Office, the Commission's Public Information Office and the Commission's Electric Staff in advance of being published. Upon their receipt of same, Staff will immediately give other interested parties five (5) business days to review the content of what the Companies seek to publish in order to raise any objection as to the content of the ads. The Commission shall be the ultimate decision maker as to whether an advertisement shall be approved.

In order for Staff to monitor the spending that the Companies will be doing in providing energy efficiency education, the Companies shall filed quarterly reports with the Commission detailing with specificity the expenditures made through this education program. None of the funds allocated shall be used for any expenditure not expressly contemplated by this order.

d) DSM Working Group

The Integrated Resource Planning statute requires this Commission to consider both demand side and supply-side options. In doing so, this Commission must evaluate "the economic, environmental, and other benefits to the state and to consumers of the utility" associated with these various options. O.C.G.A. §§ 46-3A-1(7) and 46-3A-2(b)(3).

In the early 1990's, the Commission embraced numerous DSM programs that ultimately proved costly to non-participants and provided little system-wide benefit. The primary reason for this failure was that there was no real focus or targeted objectives in approving those DSM options. As a result of this failure, in its 1995 IRP Order the Commission adopted the RIM test, which virtually eliminated implementation of any DSM initiative. As it has turned out, the Commission went from one extreme to another.

Since 1995, much has changed in the electric industry that now may impact this Commission's opinion about the need for more DSM. Among other things, many states have found ways to improve and refine these DSM programs. The move towards retail electric deregulation has all but ended, and many regulators are once again considering the public service obligations of utilities that have been granted monopoly rights. These factors, coupled with a dramatic increase in fuel costs to generate energy over the past few years, make the issue of energy efficiency one that must be more closely examined to see whether the position that this agency supported in 1995 regarding the RIM test should be revisited.

In light of these factors, the Commission seeks to find a solution that will strike a balance between economic efficiency and fairness and equity when considering implementation of DSM programs. Regrettably, the record that was created in these

dockets has not been not adequately developed in this area for the Commission to be able to find that balance. The positions of the parties on DSM were very far apart and, for most of the hearing, the parties seemed to be talking past each other and not attempting to reach any middle ground.

As such, rather than returning to the hearing process at this time to further develop the record, the Commission believes that a more productive way to proceed would be to form a DSM Working Group that shall meet to develop a proposed DSM initiative for this Commission to consider. Instead of the all-or-nothing approaches that were presented at the hearing, it is the sincere desire of this agency that the Working Group will develop a reasonable and credible DSM initiative.

Based on the foregoing, the Commission finds and concludes that a Working Group of interested stakeholders to develop a proposed DSM Plan for residential and commercial customers for the Commission's consideration. The Commission Staff shall organize and act as the facilitator of the Working Group, which shall consist of the parties in the IRP cases. The Companies shall not be required to pay the cost of retaining a consultant as requested by ASE during the hearing

The Working Group shall convene for the first time no later than August 15, 2004, and meet as often as needed thereafter. Within 10 days after each of its meetings, the Working Group shall file reports with the Commission in these IRP dockets. These reports shall detail the minutes of the meeting and provide status information regarding the project, including milestones reached and a timetable for completion of remaining milestones. The Commission does not find it appropriate to require the Companies to provide $300,000 as requested by ASE to pay costs that may be incurred by the group in executing and fulfilling its mission.

The Companies will provide to the Working Group such data as may be reasonably necessary for the Working Group to perform its tasks and develop its proposed DSM Plan. To the extent that the Companies contend that any such information is proprietary, it shall be filed with the Commission and be made available to members of the group pursuant to the Commission's Trade Secret rules.

The proposed DSM Plan shall be a comprehensive proposal consisting of 1) a mix of DSM initiatives to be recommended to the Commission for approval, including detailed information regarding how each of the initiatives would be implemented; 2) a recommended process for the selection of DSM initiatives in the future; and 3) recommendations regarding the need for changes to the Commission's IRP rules regarding DSM or for proposed legislation.

The recommended mix of DSM initiatives in the DSM Plan shall be selected by the Working Group using the following criteria:

a. The proposed DSM Plan should minimize upward pressure on rates and maximize economic efficiency. This directive is extremely critical given Georgia Power Company's $328 million pending rate increase request and Savannah Electric and Power Company's scheduled rate filing.

b. The cost/benefit analysis results of each initiative using all 3 tests (RIM, Total Resource Cost test and Participants test) shall be considered by the Working Group and shall balance between economic efficiency and fairness and equity.

c. An examination of where growth is occurring on the system shall be performed by the Working Group, which shall attempt to concentrate its recommended initiatives there. Consideration shall also be given to initiatives that encourage participation by low-income customers.

d. In addition to traditional DSM programs, the Working Group shall consider rate design initiatives. In considering such initiatives, the Working Group should consider the cost/benefit analysis of such initiatives and the time periods that such initiatives would be available to a customer.

e. Every effort should be made by the parties to develop innovative programs and market approaches that will prevent upward pressure on rates and subsidies between participants and non-participants.

f. Where appropriate, the Working Group should consider the development of pilot initiatives (limited enrollment, limited terms) as a tool to gauge initiatives.

g. The Working Group shall also provide input to the utilities in the development of the energy efficiency educational efforts approved by the Commission.

By no later than February 15, 2005, the Working Group shall conclude its mission by submitting a proposed DSM Plan to the Commission.

After the Working Group has tendered its recommendation to the Commission, this agency will consider any further action to be taken regarding the appropriate mix of DSM initiatives to be adopted and the process for the selection of DSM initiatives in the future.

e) Increased Weatherization Program Funding

In their rebuttal testimony, the Companies acknowledged the Commission's concerns regarding low-income customers and expressed a continued commitment to the low-income weatherization assistance programs that have been established for these

customers. (Tr.1025-1026.) Under cross examination by the Staff during the rebuttal phase of the hearing, the Companies indicated that they were amenable to increasing the existing level of funding for their respective low-income weatherization programs. Id. Georgia Power proposed raising its funding level by $300,000 annually (Tr.1025), while Savannah Electric indicated that it believed a $30,000 per year funding increase of its program was appropriate. (Tr.1026.)

During the Special Administrative Session held on July 9, 2004, to issue a decision in this matter, the Commission Chairman read a letter (that also was made part of the record) from Georgia Power in which it was stated this utility, and not its ratepayers, would provide this extra funding. Savannah Electric, he noted, was working toward doing the same thing.[35]

As such, the Commission finds and concludes that the low-income weatherization program of Georgia Power Company shall be continued. Its level of funding, now set at $1,000,000, shall be increased by $300,000, thereby making $1,300,000 the total sum of money that shall be dedicated to the program annually for the next three years. Georgia Power Company has agreed that this additional $300,000 in annual funding shall not be recoverable from ratepayers.

Savannah Electric's low-income weatherization program also shall be continued. Its level of funding, now set at $100,000, shall be increased by $30,000, thereby making $130,000 the total sum of money that shall be dedicated to the program annually for the next three years. Savannah Electric shall work toward supplying the additional funding so that the $30,000 will not be paid by ratepayers. After doing so, Savannah Electric shall report back to the Commission with information as to whether this is possible.

In terms of executing their weatherization programs, both Companies shall offer programmable thermostats to customers with central heat and air who wish to have them installed. Education regarding the use of these thermostats also shall be provided to the participants in these programs.

f) Staff's Programmable Thermostat Recommendation

During its direct case, Staff recommended that Georgia Power and Savannah Electric should be required to develop and implement pilot programs that provide customers an incentive to install programmable thermostats (Energy Star®) in existing residences, and that pilot programs be initiated by both Companies. (Pre-filed Direct Testimony of Staff Panel, page 58.) Initially, it was proposed by Staff that Georgia Power's program should be limited to 25,000 participants, while Savannah Electric's program should have up to 2,000 participants Id.

In the rebuttal testimony of Georgia Power and Savannah Electric, the Companies expressed support for all of Staff's DSM recommendations except for this one. (Pre-filed

[35] Transcript of Special Administrative Session, July 9, 2004, pages 4-5.

Panel Rebuttal Testimony of Companies, page 19.) This lack of support stemmed from Georgia Power's further examination of this measure[36] in which programmable thermostats were represented as having passed the RIM test by only $1.00 before any rebate was considered. Id. After the $25 rebate recommended by Staff was added to the cost of the program, Georgia Power noted that the programmable thermostat program failed the RIM test by at least $24 per thermostat. (Tr. 545.) It also was represented that additional program costs would only serve to worsen this disparity, and that the specifics for Savannah Electric regarding this measure's implementation would be similar. Id.

In light of the Commission's decision to create a Working Group to further consider DSM initiatives, the Commission declines to adopt the Staff recommendation on the development of pilot programmable thermostat program at this time.

2) Continuation of Power Credit Program

As proposed by the Companies, the Commission finds and concludes that Power Credit program should be continued. However, as recommended by Staff (Pre-filed Panel Direct of the Staff, page 60), the program shall be further evaluated by the Georgia Power and Savannah Electric based upon the marginal costs that result from this filing and be included with the updated evaluation of other DSM measures within 3 months of the issuance of the Commission's final order in these dockets. Furthermore, until such time that the Companies project that they will begin activating the programs to reduce peak loads, these programs only should be evaluated as providing reliability benefits.

3) Request for Updated DSM Data Made By Staff

With regard to the "consistency of data" issue discussed elsewhere in this order, Georgia Power and Savannah Electric agreed during cross examination by Staff to file the demand side management evaluation, just as it has always done, with what would be the most current data available at the time of the filing. (Tr.1039.) The Companies did, however, indicate the need to come back with a supplemental filing, probably in the late March/early April time frame, which would show the results of the DSM evaluation using all of those new cost assumptions that were developed in the IRP process. Id. Georgia Power Company and Savannah Electric noted that it would be their intent to try and have that data available prior to the presentation of the Companies' direct cases for the next IRPs filed. As a consequence, Georgia Power and Savannah Electric would be providing updated evaluations for all of those measures with the exact same cost data used in the IRP process itself. (Tr.1037.)

To move towards consistency of data in all analysis performed, the Commission finds and concludes that it is appropriate for the utilities to update the DSM evaluation as described herein during the next IRP filing.

[36] This examination centers on use of such a thermostat in a home heated by natural gas.

5) Use Made of Real Time Pricing Tariffs

In reviewing the Companies' various pricing options, Staff pointed out a number of short-comings with Georgia Power's Real Time Pricing ("RTP") tariffs in terms of it being viewed as a load management tool. Staff argued that due to the way this tariff has been administered, RTP has not resulted in a sizable reduction of load during peak periods. (Pre-filed Direct Testimony of Staff Panel, page 60.) Rather, Staff contended that since it appears that RTP is being used to compete for new loads, the Company's claims of peak load reduction benefits to its system really do not exist. Id. Staff did not dispute that RTP can be a tool for economically adjusting the load shapes of participants in a manner that can benefit not only them but non-participants as well. It did take the position, however, that in order to be effective and beneficial, the hourly price signals must be adequate to encourage participants to change their hourly load shapes. Id. at 60-61. Prices charged of participants on these tariffs must be set to ensure that these customers are supporting the marginal costs incurred to serve them, plus provide a reasonable contribution toward fixed costs. Id. If they are not set to recover these costs, then non-participating customers would be subsidizing the customers on these rates.

The Staff also expressed a concern that the tariff does not contain sufficient requirements for establishing a firm Customer Baseline Load (CBL) below the actual projected load for new load. Id. at 61. The RTP tariff automatically permits an industrial customer to establish its CBL at 60% of the forecasted load for new load, without proof that it can actually operate at 60% of the forecasted load. In addition, the CBL for new loads can be further reduced by reducing load on a one-time basis for only two (2) consecutive hours, with a day-ahead notice. RTP customers have significant economic incentive to reduce their loads for these two hours, considering the fact that they can achieve significant potential savings on all additional load reductions.[37] Staff was concerned that, while RTP tariffs provide significant incentive for customers to temporarily reduce loads to obtain lower RTP prices, reductions may not materialize when the need for significant, sustained load to be shed in the future. Id. at 62. This concern is supported by the fact that estimated RTP reductions for 2003 were such a small fraction of the total RTP load above CBL on Georgia Power's system. If a customer's CBL is set artificially low, then that customer would not be making an appropriate contribution towards fixed costs and those costs would have to be shifted to the remaining non-participating customers.

Staff testified at the hearings that Georgia Power's RTP tariff, as presently administered, has not achieved an appreciable level of load reduction relative to total load above the CBL. Id. at 63. As such, it should be subject to revisions in the upcoming rate case to achieve this goal, if the Commission regards the purpose of RTP to be a load management tool. Id. In addition, the Staff recommended that in its next IRP filing,

[37] This information was derived from the Staff Report filed with the Commission in Docket No. 16896-U, Proceeding to Examine Alleged Discrimination in the Application of Georgia Power Company's Real Time Pricing Tariff, filed on November 14, 2003, p. 8-9.

Georgia Power provide an updated study of the peak load reduction benefits and costs of RTP. Id.

In rebuttal testimony Georgia Power argued that the Staff recommendations do not recognize the primary purposes of the RTP tariffs, which are to provide marginal cost based rates to customers in Georgia that represent market conditions while fully covering cost and making a contribution to fixed costs of customers. (Pre-filed Panel Rebuttal of the Companies, page 21-22.) Georgia Power further argued that its RTP tariffs helped it to compete in the customer-choice market, which results in downward pressure on rates to all of its customers. It was further noted that load management also was a benefit derived from RTP tariffs, through which customers could compare the value of electricity to their cost and make a decision whether or not to purchase energy. Id. Georgia Power testified that it has seen RTP load reduction of over 800 MW in previous years when constrained capacity resources forced the RTP price to extremely high levels. Id.

The Commission finds and concludes that the RTP tariffs shall be further evaluated during the Georgia Power 2004 rate case. If it is found to be appropriate in that case for modifications to the RTP tariffs to be made, the Commission will consider doing so in conjunction with issuing its final order in that docket. For purposes of this case, however, from a system reliability standpoint, it is extremely important to have the best information available to evaluate the load impact of RTP tariffs on the system. Therefore, the Commission finds and concludes that, in its next IRP filing, Georgia Power shall provide an updated study of the peak load reduction benefits from its RTP tariffs.

6) Green Power Programs

Georgia Power Company's 2004 IRP filing includes a stated intention to pursue Green Energy contracts that will provide renewable resources to meet customer requirements.[38] Savannah Electric stated in its IRP filing[39] that it will participate in the Green Power Program approved in Docket No. 16574-U. These programs will not provide capacity resources but will allow willing customers to purchase green energy at zero-cost to non-participants. Both are designed so that they are voluntary for the participants and will have no adverse impact on non-participants. The green portfolio as contemplated will likely include solar, wind, and landfill gas resources.

In the summer of 2003, the Commission approved for each company a Green Energy tariff that authorizes it to sell renewable energy under certain terms and conditions. Despite obtaining this approval, however, the Companies have represented that they are having difficulty in finding local viable sources for their Green Power Programs (Tr.89), which presently are not active. In its testimony, the Staff Panel recommended

[38] See pages 1-7.
[39] See page 9.

that the Companies increase their efforts to locate and contract for green energy resources. (Pre-filed testimony of Staff Witness Panel, p. 71.)

In conjunction with their doing so, Staff also recommended that a target date of one year be established for them to identify a source or sources of green energy, to secure these resources, to establish the availability of the option and to initiate subscriptions with their customers. Id. If, however, within the one year period from August 1, 2004, the Companies remain unable to establish a contractual relationship renewable energy despite employing their best efforts, they should be required to return to the Commission with an explanation and request that their Green Power Programs be re-evaluated. Id. The Companies indicated that they agreed with this recommendation in their rebuttal testimony. (Pre-filed testimony of Companies' Rebuttal Panel, pages 2-3.)

As a consequence of the foregoing, the Commission finds and concludes that the Companies shall increase their efforts to locate and contract for green energy resources. A target date of one year from the date of this final order shall be established at which time the Companies shall identify a green energy source or sources; contract to secure the resources; confirm the availability of the tariff with interested consumers, as well as commence their pre-planned advertising campaigns; and to initiate subscriptions with their customers. If, by August 1, 2005, the Companies remain unable to successfully execute these functions despite employing their best efforts, Georgia Power and Savannah Electric shall file notification of the underlying circumstances with the Commission by September 1, 2005, so that the agency can re-evaluate their Green Power Programs.

7) TRANSMISSION

The Staff Panel was the only set of witnesses that provided any type of examination of the Companies" transmission system planning, the results of which will be set forth generally hereinafter. In doing so, Staff found that the Companies made an assessment of the adequacy and reliability of their transmission system by using the Guidelines for Planning the Southern Company Transmission System (the "Southern Guidelines"), the Guidelines for Planning the Georgia Integrated Transmission System ("ITS Guidelines"), the North American Electric Reliability Council ("NERC") Planning Standards, and the Southeastern Electric Reliability Council ("SERC") Supplements to the NERC Planning Standards. The Companies used two basic criteria for determining its reliability of the transmission grid: (1) overloads on line conductors (based on their thermal limits), and (2) under-voltage on transmission busses.[40] (Pre-filed Panel Testimony of Staff, pages 66-67.)

Staff observed that these criteria were applied first to the "base case" where all generation and loading conditions are at levels that are expected to be "normal."

[40] There are other planning criteria such as transient stability but the criteria mentioned above are the main ones.

Subsequently, the criteria were applied to contingency cases (in particular to first-contingency failure situations), where a generation unit or a transmission line (or transformer) is removed from service. Id. at 67. Under these contingency conditions, the Companies would be able to determine where trouble spots are given likely operating conditions which would allow them to determine whether operating solutions exist to solve the problem, or whether new transmission facilities must be built to solve it. Insofar as their planning procedures are concerned, the Companies took a typical approach to identifying and proposing various solutions to problem areas on the transmission system, eliminating solutions that do not work, and selecting the most cost-effective solution for the long-term.

Staff's analysis resulted in a finding that three basic types of transmission projects existed: 1) projects related to general improvements to the transmission grid; 2) projects related to the addition of new generation to the transmission grid; and 3) projects related to the increase in interface transfer capacity (imports or exports) between the Southern Company (Georgia Power and Savannah Electric in particular) and adjacent utility systems. Although Staff's review was limited to only 12 projects, each of them appeared to be justifiable.[41] Id. at 68-69. The Companies were believed to have identified projects in the ten-year transmission plan that presently are or will be necessary to provide adequate and reliable electric service to their respective customers. Id. Of course, the Commission does not certify transmission projects in the IRP, and decisions on the inclusion of transmission costs in base rates is a decision that is made in rate cases.

In terms of recommendations, Staff had just one. In future IRP filings, Staff would like the Companies to provide the most inclusive and detailed data available for the first half of its 10-year plan. For the remaining half of its plan, the data provided could contain less in-depth information. Id. at 91. In considering Staff's request in this regard, the Companies have indicated in their rebuttal that they are not opposed to doing so. (Pre-filed Panel Rebuttal Testimony of the Companies, page 3.)

As such, the Commission finds and concludes that future IRP filings should provide specific, comprehensive, detailed data for the first 5 years of the 10-year transmission plan, and less detailed data for the remaining 5 years of the plan.

8) ENVIRONMENTAL COMPLIANCE STRATEGY

In analyzing the Companies' IRP filings, Staff reviewed the 2002/2003 Environmental Compliance Strategy Report contained in the Technical Appendix, Volume 1B of Georgia Power's IRP filing. In doing so, the Environmental Compliance Strategy Report was examined to determine if the many environmental issues impacting electric utility operations were adequately analyzed and properly incorporated into the IRPs. Staff also

[41] Despite making this statement, Staff noted that it could not be stated with certainty that every other project is absolutely necessary, nor could it be said definitively that there might not be other alternatives to some of the projects that the Companies are proposing.

evaluated the environmental issues and assumptions utilized in the Unit Retirement Study, which is also found in Technical Appendix, Volume 1B.

As a result of conducting its review, Staff made three recommendations to the Commission in which it sought additional information to what had been filed in the IRPs. Its first recommendation was that, within 60 days of a final order in these dockets, a comprehensive assessment be filed by the Companies detailing all of the possible impacts of all pending environmental regulations that may take effect in the next twelve months. This assessment should provide the Commission with an annual update of the impact of newly promulgated environmental regulations or proposed legislation that may modify the Companies' most recently completed IRP process. It also should include a high and low range of potential capital cost requirements if a particular regulation is promulgated or legislation is enacted, and state whether compliance with the enactment will materially change the recommendations made in the 2004 IRPs. Staff further proposed that the Companies be directed to provide the Commission with an annual update of their Environmental Compliance Strategy along with an analysis of how the updated strategy will impact the Companies' planning processes for the addition of generation and transmission. (Pre-filed Panel Testimony of Staff, pages 91-92.)

A second recommendation made by Staff was for the Companies to use in future IRP filings the same environmental scenarios from their Unit Retirement Study as they do in the Resource Planning Model (IRP Base Case). Id. at 92. This request was made based on a belief that in the 2004 filings, the Unit Retirement Study used included two additional cases recognizing the potential for increased levels of compliance, including Regional Particulate, Regional Haze, State NOx 8-hour Ozone SIPs, Mercury MACT, Clear Skies Act, Clean Power Act and Clean Air Planning Act. Id. The scenarios used in the Resource Planning Model Base Case, however, appeared to Staff to only include previous Acid Rain provisions, the 1-hour ozone requirements and the Regional NOx SIP Call for Georgia beginning in 2007. Using the same scenarios in both the IRP base case and the Unit Retirement Study was promoted by Staff as providing for greater homogeneity.

Staff's third recommendation was for Georgia Power to prepare and file an assessment of the potential impact of increased environmental costs due to hydropower re-licensing. Id. at 92-93. The assessment sought should include the potential impact of increased environmental costs due to hydropower relicensing, reflecting not only the costs of re-licensing but also the potential for lost capacity due to operational modifications to mitigate environmental concerns and the potential increased capacity as a result of unit rehabilitation. In addition thereto, Staff recommended that Georgia Power be directed to provide an assessment of the impact of lost hydropower generation on the existing IRP resource mix if, during relicensing, capacity loss occurs due to environmental mitigation.

With respect to its first recommendation, it should be noted that the Company filed on May 21, 2004, Southern Company's 2003/2004 Environmental Compliance Strategy Review, which is an annual filing that is made on behalf of Georgia Power and

Savannah Electric. This 2004 environmental filing, which was made one week after Staff's panel testimony was filed, contains much of the information that Staff recommended be filed, although perhaps not to the level of detail that was identified in the panel testimony. (Pre-filed Panel Rebuttal of the Companies, page 43.)

As it pertains to Staff's second recommendation, the Companies indicated that there was no objection with compliance but noted that it appeared to be the product of Staff's confusion that the environmental scenarios from the IRP base case were different from those used in the Unit Study when this was not the case. (Pre-filed Panel Rebuttal of the Companies, pages 49-50).

Regarding the third recommendation, however, Georgia Power has expressed concerns in its panel rebuttal testimony regarding Staff's request as it relates to the preparation and filing of an assessment of potential impacts of increased environmental costs due to Hydropower Re-licensing. In doing so, Georgia Power noted that such an analysis was done in compliance with the 2001 IRP order in which it was noted that cost and other issues related to facility upgrades were largely unknown some 5 years before the first facility was to be relicensed.[42] (Pre-filed Panel Rebuttal of the Companies, page 53.)

Based upon the foregoing, the Commission finds and concludes that the Companies shall continue to file their Environmental Compliance Strategy Review on an annual basis; provided, however, that the scope of this filing shall be supplemented to include: 1) a high and low range of potential capital cost requirements if a particular regulation is promulgated or legislation is enacted, and information whether compliance with the enactment will materially change the recommendations made in the 2004 IRPs; and 2) an analysis of how the updated strategy will impact the Companies' planning processes for the addition of generation and transmission.

The Commission further finds and concludes that it is appropriate for Georgia Power to keep this agency and its Staff abreast of any developments that will result in more concrete information becoming available regarding cost estimates and facility upgrades for the hydropower facilities that are to be relicensed. Information that should be provided to the Commission on this issue, when available, shall include the potential impact of increased environmental costs due to hydropower relicensing, reflecting not only the costs of re-licensing but also the potential for lost capacity due to operational modifications to mitigate environmental concerns and the potential increased capacity as a result of unit rehabilitation. In addition thereto, Georgia Power shall provide in its Environmental Compliance Strategy Review an assessment of the impact of lost Hydropower generation on the existing IRP resource mix if, during relicensing, capacity loss occurs due to environmental mitigation.

[42] The hydropower facilities to be relicensed within the next 20 years include Morgan Falls (2009), Bartletts Ferry (2014) and Wallace Dam (2020).

9) GENERAL RECOMMENDATIONS

a) Anticipated Impacts of Resource Plans on Rates

In its rebuttal testimony, the Companies opposed providing more detailed information regarding individual company rate impacts resulting from the underlying resource selections. (Companies' Pre-filed Rebuttal Panel Testimony, p. 48.) The panel indicated that more detailed information regarding rate impacts of resource selections was not the purpose of the IRP hearing, which was held to examine the development of resource plans and not project rates. (Tr. 1013-1014.) However, when pressed as to what type of hearing would take place at which the Commission would have the opportunity to examine the potential rate impacts, given that gas prices are high, environmental costs are growing and the company plans to do nothing but build gas-fired units, no forum could be identified. Id. It was also noted during rebuttal that what information had been provided about rate analyses in Exhibit A-1 to Georgia Power's Technical Appendix 1-A pertained to the Southern Company foot print as a whole, and not to each of the individual operating companies. (Tr. 1004-1005.)

Based upon the absence of company-specific details regarding rate-analyses for the resources identified in the plan, the Commission finds and concludes that the Companies must more fully communicate in future IRP filings information regarding the anticipated impacts their resource plans have on their forecasted rates. The nature of the Companies' resource mix clearly is changing. Operating companies' rates are vulnerable to such things as fuel spikes, environmental actions and technology advancements. As the resource mix changes from one that primarily uses coal and nuclear energy to one that more heavily relies on natural gas, the vulnerabilities and rate impacts that accompany such change must be clearly and accurately articulated within the IRP filings. Furthermore, at such time as the ultimate decision is to be made as to selecting one technology type over another, the knowledge of forecasted rate impacts should provide additional guidance in selecting the appropriate resource type. The IRP review, with its focus on a long-term evaluation of resource plans would be the ideal proceeding to also evaluate the resulting impacts on individual operating company customer rates.

b) Filing of Information in Integrated Resource Plans

In future IRP filings, the Companies are encouraged to use consistent data in evaluating all aspects of the IRP. Again, this includes transmission analyses, DSM modeling, retirement studies, as well as the load forecast, etc.

B) DIRECTIVES PERTAINING TO THE IRP RULES REGARDING THE PROCESS FOR ISSUING AND EVALUATING REQUESTS FOR PROPOSALS

As previously stated in this Order, the Commission invited interested parties to provide testimony during the hearings on various topics related to the manner in which bids for purchase power contracts are solicited and evaluated on behalf of the Companies. The purpose of seeking this information was to consider amending Utility Rule 515-3-4-.04(3), Request for Proposals Procedure for Long-Term New Supply–Side Options, to state with greater specificity the steps that were to be followed when a competitive solicitation was to be issued for purchase power to fill a designated supply-side need. Recommendations were made that pertain to the timing issues related to the bidding process to be considered in future solicitations.

a) Modifications Proposed to Existing Utility Rule 515-3-4-.04(3)

The Staff, Calpine, and GTMA/GIG pre-filed testimony[43] that responded to the issues identified by the Commission on this subject, all of which was supportive of having some form of an independent evaluator involved in the RFP process. Each of the witnesses testifying on this topic, however, had different ideas regarding the details that would need to be laid out regarding the manner in which the RFP was to be issued, how they were to be evaluated, and how the winning solicitations were to be selected and presented to the Commission for certification. The Companies, while not as adamant as the other responding parties as to the need to have an independent entity perform these functions, offered testimony as to what they believed would be a fair process through which an independent monitor could assist in the RFP.[44]

As the hearing progressed, representatives of Staff, Calpine, GTMA/GIG, the CUC and the Companies met to discuss this issue to see if a joint solution could be reached. During the rebuttal phase of the hearings, the Companies, on behalf of all of the aforementioned parties, entered into evidence as "Joint Parties Exhibit 1" a Stipulation endorsing the acceptance of measures to be applied in future supply-side solicitations over which a Commission-selected Independent Evaluator would preside. The structure proposed therein represents principles and procedures the sponsoring entities believe should be captured and embodied in a rulemaking by the Commission to modify existing Rule 515-3-4-.04(3) in order to adopt an Independent Evaluator ("IE") for use in all

[43] Staff's initial view on the RFP related issues can be found on pages 76 through 87 of its pre-filed panel testimony. Calpine's preliminary position on these issues was provided by Mr. Timothy Eves on pages 8 through 20 of his pre-filed testimony. GTMA/GIG's stance on this subject matter was provided by Mr. Jeffry Pollock on pages 5 through 10 of his pre-filed testimony.

[44] The positions taken by the Companies on the contemplated RFP process changed throughout the hearings and can be found on pages 17 through 27 of their pre-filed direct testimony, as well as later in their proposal modifying this initial position found on pages 22 to 40 of their rebuttal.

future RFPs. To make the changes called for by the Stipulation, it was further recommended that a rulemaking be commenced by the Commission.[45]

Based on the agency's review of the Joint Stipulation, which is attached and incorporated by reference herein, the Commission finds and concludes that it is appropriate to approve and accept its terms and provisions as part of the Final Order in these dockets. In order to properly further the enhancements that have been authorized, the Commission finds and concludes that a rulemaking proceeding shall be initiated before the end of August 2004, in which the Commission shall accept and incorporate the proposed amendments to the RFP Rule in accordance with the RFP/IE structure endorsed by the stipulation.

b) Detailed Code of Conduct To Be Prepared by the Companies

The Commission also finds and concludes that the Companies shall prepare and file for the agency's approval no later than August 31, 2004, a detailed code of ethics regarding affiliate communications, particularly as they relate to the preparation and evaluation of competitive solicitations. The depth and breadth of the code of conduct that is to be proposed by Georgia Power and Savannah Electric shall be extended to cover those individuals that are directly or indirectly in the employ of any of its affiliates or parent company and shall be executed in the manner contemplated by the Joint Stipulation.

c) Status Of The 70/30 Directive Regarding The Ownership Percentage Of And The Purchased Power Percentage Of Capacity Called For In the 2001 IRP Order

In his pre-filed testimony, Calpine witness Tim Eves argued that the directive calling for at least 70% ownership of capacity by the Companies and not more than 30% purchased power[46] should be regarded as a flexible Commission "guideline" and not a "hard cap."[47] (Pre-filed testimony of Calpine, p. 21-22.) However, the manner in which the limitations on the percentage of purchased power works is now governed by the terms of the Joint Stipulation. The only remaining question is whether the Commission, at this time, should modify those percentages. Having considered doing so, the Commission expressly declines to make any such modification at this time. In opting not to change the percentages, the Commission notes that the Companies are not and will not be in the next 3 years in a situation in which the issue the 30% cap will be reached. Consistent with the terms of the Joint Stipulation, the Commission will revisit the issue in the 2007 IRP.

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[45] On transcript pages 962-966, Companies' witness Garey C. Rozier provided a good summary of the contents of the Stipulation, which will not be recited again in this Order, but rather, will be made an attachment to and be incorporated by reference.

[46] This 70/30 directive is contained in the *Final Order* issued in IRP Docket Nos. 13305-U and 13306-U.

d) Directives Pertaining to the Contemplated Solicitation for 2009 Capacity Needs

1) Inclusion of Life of Unit Solicitations in Future IRPs

During the hearing, Staff made a recommendation that future capacity solicitations should include requests for consideration of proposals for "life-of-unit" proposals. (Pre-filed Direct Staff Panel Testimony, page 90.) As understood by the Commission, these bids effectively permit a merchant unit owner to sell the capacity and energy to the Companies for the same time period that the Companies themselves would operate a self-build option. On rebuttal, the Companies indicated that it was opposed to seeking life-of-unit proposals on the grounds that it would cause a loss in operating flexibility, was unnecessary since the existing 7 to 15 year solicitations have yielded good results, and would cause confusion as to what is actually meant in by the phrase "life-of-unit" in submitting and evaluating such a bid. (Tr. 1014-1016.)

The Commission disagrees with the Company in part, and would like to see such bids solicited in order to foster competitive bidding in Georgia. In seeking life-of-unit bids, however, the Commission does agree that there exists a potential for confusion as to what exactly is being sought in terms of a supply side resource.

Based on these concerns, the Commission finds and concludes that in the 2009 RFP, the Companies shall seek 30-year contracts for purchased power in addition to the 7- and 15-year contracts that it has been soliciting in recent time. In the event that this directive would conflict with the Commission's 30% limit on total supply-side purchased power resources, the life-of-unit purchases could then be structured as an actual sale of the unit(s) to the Companies.

2) Schedule of Actions for the Next RFP to be Issued

In furtherance of the objectives set forth in the Joint Stipulation regarding the competitive bidding process referenced above, the Commission finds and concludes that the a schedule of events for the release of an RPF shall be adhered to in conjunction with seeking the most economical supply-side capacity assets in the immediate future. On or before July 15, 2005, the Companies will file for approval with the Commission a proposed schedule of events for the release of RFPs for the time period 2009 through 2012. This filing shall also include target dates for submitting proposed IE's, RFP Service Dates, dates for notification of bid and evaluation team members, dates for filing of draft RFP's and standard purchase power agreements and capacity to be sought in each RFP.

Once approved by the Commission, any deviations, planned or unintended, from the established schedule must be authorized by this agency before they are made by the Companies.

IV. ORDERING PARAGRAPHS

WHEREFORE IT IS ORDERED that the Commission adopts the Integrated Resource Plans developed by Georgia Power and Savannah Electric with the augmentations and/or modifications set out below.

ORDERED FURTHER, that the demand and energy forecasts filed by Georgia Power and Savannah Electric be approved without modification to any projections to any customer class.

ORDERED FURTHER, that Georgia Power and Savannah Electric shall update their demand and energy forecasts and budget comparison information through March 31, 2004, in order to reflect actual usage that has occurred since these forecasts were finalized in the spring of 2003. Once updated through this time frame, these forecasts shall be filed with the Commission by no later than August 16, 2004.

ORDERED FURTHER, that in conducting future reserve margin studies, as with all evaluations that are conducted as part of an IRP, consistent modeling data should be used to the greatest extent possible.

ORDERED FURTHER, that the Companies' target reserve margin for the 2004–2006 timeframe shall be set at 13.5%, with 15% to be used for the remainder of the study period.

ORDERED FURTHER, that the Companies' Generation Expansion Plans shall be regarded as adequate based upon the information that has been made available to the Commission .

ORDERED FURTHER, that Plant Atkinson CT's 5 A and 5B shall be de-certified by Georgia Power Company.

ORDERED FURTHER, that Savannah Electric shall extend the planned life of the 17 MW Kraft CT unit capable of providing black starts and remove it from further consideration for retirement until such time when such action is shown to be warranted.

ORDERED FURTHER, that Georgia Power and Savannah Electric shall inform the Commission in a filing of any changes in fuel price conditions, including external forecasts that may warrant development of a new utility price forecast and advise the Commission on the impacts these changes may have on the long range IRP. The Companies also shall make available any fuel forecast update as soon as it is available within each 6 month Progress Report to the Commission called for by Utility Rule 515-3-4-.05.

ORDERED FURTHER, that both GPC and Savannah Electric shall further develop the partnership that it has entered into with Energy Star through which appliances acknowledged as having a certain level of energy efficiencies would be promoted by the Companies in ways such as providing consumers with manufacturers' coupons for energy efficient appliances with their bills.

ORDERED FURTHER, that Georgia Power and Savannah Electric also shall more aggressively promote the availability of energy audits for interested customers.

ORDERED FURTHER, that the Companies shall offer as part of their low-income weatherization programs the option of having programmable thermostats installed to those customers with central heat and air that wish to have the thermostat installed. Education as to how to use the thermostat shall also be provided.

ORDERED FURTHER, that a Working Group be created of interested stakeholders to develop a proposed DSM Plan for residential and commercial customers for the Commission's consideration. The Commission Staff shall organize and act as the facilitator of the Working Group, which shall consist of the parties in the IRP cases.

ORDERED FURTHER, that the recommendation by ASE and supported by SACE and GIPL for the Companies to be required to fund a consultant for a working group is rejected in its entirety.

ORDERED FURTHER, that the Working Group shall convene for the first time no later than August 15, 2004, and meet as often as needed thereafter.

ORDERED FURTHER, that within 10 days after each of its meetings, the Working Group shall file reports with the Commission in these IRP dockets. These reports shall detail the minutes of the meeting and provide status information regarding the project, including milestones achieved and a timetable for completing those that remain.

ORDERED FURTHER, that the Companies will provide to the Working Group such data as may be reasonably necessary for the Working Group to perform its tasks and develop its proposed DSM Plan. To the extent that the Companies contend that any such information is proprietary, it shall be filed with the Commission and be made available to members of the group pursuant to the Commission's Trade Secret rule.

ORDERED FURTHER, that the proposed DSM Plan shall be a comprehensive proposal consisting of 1) a mix of DSM initiatives to be recommended to the Commission for approval, including detailed information regarding how each of the initiatives would be implemented; 2) a recommended process for the selection of DSM initiatives in the future; and 3) recommendations regarding the need for changes to the Commission's IRP rules regarding DSM or for proposed legislation.

ORDERED FURTHER, that the recommended mix of DSM initiatives in the DSM Plan shall be selected by the Working Group using the following criteria:

a. The proposed DSM Plan should minimize upward pressure on rates and maximize economic efficiency. This directive is extremely critical given Georgia Power Company's $328 million pending rate increase request and Savannah Electric and Power Company's scheduled rate filing.

b. The cost/benefit analysis results of each initiative using all 3 tests (RIM, Total resource Sot test and Participants test) shall be considered by the Working Group and shall balance between economic efficiency and fairness and equity.

c. An examination of where growth is occurring on the system shall be performed by the Working Group, which shall attempt to concentrate its recommended initiatives there. Consideration shall also be given to initiatives that encourage participation by low-income customers.

d. In addition to traditional DSM programs, the Working Group shall consider rate design initiatives. In considering such initiatives, the Working Group should consider the cost/benefit analysis of such initiatives and the time periods that such initiatives would be available to a customer.

e. Every effort should be made by the parties to develop innovative programs and market approaches that will prevent upward pressure on rates and subsidies between participants and non-participants.

f. Where appropriate, the Working Group should consider the development of Pilot Initiatives (limited enrollment, limited terms) as a tool to gauge initiatives.

g. The working group shall also provide input to the utilities in the development of the energy efficiency educational efforts approved by the Commission.

ORDERED FURTHER, that by no later than February 15, 2005, it shall conclude by submitting a proposed DSM Plan to the Commission.

ORDERED FURTHER, that the Commission does not find it appropriate to require the Companies to provide $300,000 as requested by ASE to pay costs that may be incurred by the group in executing and fulfilling its mission.

ORDERED FURTHER, that after the Working Group has tendered its recommendation to the Commission, this agency will consider any further action to be

taken regarding the appropriate mix of DSM initiatives to be adopted and the process for the selection of DSM initiatives in the future

ORDERED FURTHER, that given the Commission decision to create a Working Group to consider DSM programs, the Staff recommendation that the Companies develop a pilot programmable thermostat DSM program is not adopted by the Commission at this time.

ORDERED FURTHER, that the low income weatherization program of Georgia Power Company shall be continued. Its level of funding, now set at $1,000,000, shall be increased by $300,000, thereby making $1,300,000 the total sum of money that shall be dedicated to the program annually for the next three years. Georgia Power Company has agreed that this additional $300,000 in annual funding shall not be recoverable from ratepayers.

ORDERED FURTHER, that Savannah Electric's low-income weatherization program also shall be continued. Its level of funding, now set at $100,000, shall be increased by $30,000, thereby making $130,000 the total sum of money that shall be dedicated to the program annually for the next three years. Savannah Electric shall work toward supplying the additional funding so that the $30,000 will not be paid by ratepayers. After doing so, Savannah Electric shall report back to the Commission with information as to whether it can do so.

ORDERED FURTHER, that additional education on the efficient use of electricity shall be made available by the Companies.

ORDERED FURTHER, that Georgia Power shall fund with no more than $2,000,000 an energy efficiency campaign that it shall implement to promote consumer awareness of those energy efficiency measures and practices that produce the greatest economic efficiency and benefit to a participant.

ORDERED FURTHER, that Savannah Electric shall fund with no more than $200,000 an energy efficiency campaign that it shall implement to promote consumer awareness of those energy efficiency measures and practices that produce the greatest economic efficiency and benefit to a participant.

ORDERED FURTHER, that in order to further their respective energy efficiency educational campaigns, the Companies may use any recognized medium through which their customers could reasonably be expected to be exposed, including, but not limited to, television advertisements, radio spots and advertisements in local newspapers and periodicals.

ORDERED FURTHER, that all information disseminated through the media shall be for the exclusive purpose of promoting education in the area of energy efficiency and shall not serve as a forum to promote the Southern brand (or that of its subsidiaries) in any way, or to further other initiatives of the Companies outside of those contemplated

herein. Television, radio and/or print ads shall provide as much information about managing electric usage as possible in the time/space allotted. A general understanding of electric energy efficiency and conservation should be able to be derived by the average viewer after seeing/listening to any advertisements. The theme of all advertisements should be strictly education-based. Any advertisements that the Commission, in its sole discretion, finds not to be adequate for its intended purpose shall not be financed with monies allocated in this order for consumer education.

ORDERED FURTHER, that copies of television ads, radio scripts and print advertisements containing information that is to be disseminated to the public as part of the energy efficiency programs shall first be provided to the Commission's Consumer Affairs Office, the Commission's Public Information Office and the Commission's Electric Staff in advance of being published. Upon their receipt of same, Staff will immediately give other interested parties five (5) business days to review the content of what the Companies seek to publish in order to raise any objection thereto. The Commission shall be the ultimate decision maker as to whether an advertisement shall be approved.

ORDERED FURTHER that the Companies shall file quarterly reports at the Commission detailing with specificity the expenditures made through this education program. None of the funds allocated shall be used for any expenditure not expressly contemplated by this order.

ORDERED FURTHER, that to move towards consistency of data in all analyses performed, the Commission finds that it is appropriate for the utilities to update the DSM evaluation as described herein during the next IRP filing.

ORDERED FURTHER, that the Companies shall continue their implementation of the Power Credit Program;

ORDERED FURTHER, that the Power Credit program shall be further evaluated by the Companies based upon the marginal costs that result from this filing and be included with the updated evaluation of other DSM measures within 3 months of the issuance of the Commission's Final Order in these dockets.

ORDERED FURTHER, that with regard to the "consistency of data" issue discussed elsewhere in this order, as it relates to the DSM screening analysis, Georgia Power and Savannah Electric shall file the demand side management evaluation with what would be the most current data available at the time of the filing, but then come back with a supplemental filing, in the late March, early April time frame, that would show the results of the DSM evaluation using all of those new cost assumptions that were developed in the IRP process.

ORDERED FURTHER, the Companies shall update their DSM evaluation in the manner described in this order for use in their 2007 IRP filings.

ORDERED FURTHER, that the Commission shall evaluate the RTP tariffs during the Georgia Power 2004 rate case and make any appropriate tariff revisions at that time as it sees fit.

ORDERED FURTHER, that, in its next IRP filing, Georgia Power shall include an updated study of the peak load reduction benefits from RTP tariffs.

ORDERED FURTHER, that the Companies shall increase their efforts to locate and contract for green energy resources for their Green Energy Programs.

ORDERED FURTHER, that a target date of one year from the date of this Final Order shall be established during which the Companies shall identify a green energy source or sources; contract to secure the resources; confirm the availability of the tariff with interested consumers, as well commence their pre-planned advertising campaigns; and to initiate subscriptions with their customers.

ORDERED FURTHER, that if, by August 1, 2005, the Companies remain unable to successfully execute these functions relating to renewable resources despite employing their best efforts, Georgia Power and Savannah Electric shall file a notification of the underlying circumstances with the Commission by September 1, 2005, so that the agency can re-evaluate their Green Power Programs.

ORDERED FURTHER, that in future IRP filings, the Companies provide the most comprehensive, detailed data available for the first half of their 10-year transmission plan. For the remaining half of its plan, less detailed data may be filed

ORDERED FURTHER, that the Companies shall continue to file their Environmental Compliance Strategy Review on an annual basis; provided, however, that the scope of this filing shall be supplemented to include: 1) a high and low range of potential capital cost requirements if a particular regulation is promulgated or legislation is enacted, and information whether compliance with the enactment will materially change the recommendations made in the 2004 IRPs; and 2) an analysis of how the updated strategy will impact the Companies' planning processes for the addition of generation and transmission.

ORDERED FURTHER, that Georgia Power shall keep this agency and its Staff abreast of any developments that will result in more concrete information becoming available regarding cost estimates and facility upgrades for the hydropower facilities that are to be relicensed. Information that should be provided to the Commission on this issue, when available, shall include the potential impact of increased environmental costs due to hydropower relicensing, reflecting not only the costs of re-licensing but also the potential for lost capacity due to operational modifications to mitigate environmental concerns and the potential increased capacity as a result of unit rehabilitation.

ORDERED FURTHER, that Georgia Power shall provide in its Environmental Compliance Strategy Review an assessment of the impact of lost Hydropower

generation on the existing IRP resource mix if, during relicensing, capacity loss occurs due to environmental mitigation.

ORDERED FURTHER, that the Companies must more fully communicate to the Commission in future IRP filings information regarding the anticipated impacts their resource plans have on their forecasted rates. The vulnerabilities and rate impacts that accompany the resource mix change being planned for must be clearly and accurately articulated within the IRP filings.

ORDERED FURTHER, that in conducting IRP studies the Companies should to the greatest extent possible, set as an objective to use consistent data throughout all analyses conducted as part of the IRP.

ORDERED FURTHER, that the Joint Stipulation regarding the RFP/IE rule enhancements agreed to by interested parties in these dockets is approved as part of the Final Order in the dockets, a copy of which is attached and incorporated by reference herein.

ORDERED FURTHER, that a rulemaking proceeding shall be initiated by Staff before the end of August 2004, in which the Commission shall promulgate as rule amendments the RFP/IE structure endorsed by the Joint Stipulation.

ORDERED FURTHER, that the Companies shall prepare and file for the agency's approval no later than August 31, 2004, a detailed code of conduct regarding affiliate communications, particularly as they relate to the preparation and evaluation of competitive solicitations.

ORDERED FURTHER, that the depth and breadth of the code of conduct that is to be proposed by Georgia Power and Savannah Electric shall be extended to cover those individuals that are directly or indirectly in the employ of any of its affiliates or parent company and shall be executed in the manner contemplated by the Joint Stipulation.

ORDERED FURTHER, that consistent with the IRP Final Order issued July 5, 2001, the Commission shall limit the amount of supply-side capacity provided through purchased power contracts to 30 percent of total supply-side resources. A determination of whether this cap should be increased, decreased or eliminated in its entirety is an issue that this Commission will not have the need to contemplate until the 2007 IRP.

ORDERED FURTHER, that in the 2009 RFP, the Companies shall seek 30-year contracts for purchase power in addition to the 7- and 15-year contracts that it has been soliciting in recent time. In the event that this directive would conflict with the Commission's 30% limit on total supply-side purchase power resources, the life-of-unit purchases could then be structured as an actual sale of the unit(s) to the Companies.

ORDERED FURTHER, that on or before July 15, 2004, the Companies will file for approval with the Commission a proposed schedule of events for the release of RFPs for the time period 2009 through 2012. This filing also shall include target dates for submitting proposed IE's, RFP Service Dates, dates for notification of bid and evaluation team members, dates for filing of draft RFP's and standard purchase power agreements and capacity to be sought in each RFP.

ORDERED FURTHER, that once approved by the Commission, any deviations, planned or unintended, from the established schedule of events must be authorized by the agency before they are made by the Companies.

ORDERED FURTHER, that no determinations are made as to the need, effectiveness or reasonability of any rates, tariffs and pricing strategies filed in conjunction with the IRPs in this Order. The feasibility and determination of the appropriate level of these rates, tariffs and pricing strategies shall be made in the general rate cases that have been or will be filed by the Companies in 2004.

ORDERED FURTHER, that all findings of fact and conclusions of law contained within the preceding sections of this Order are hereby adopted as findings and conclusions of this Commission.

ORDERED FURTHER, that a motion for reconsideration, rehearing or oral argument or any other motion shall not stay the effective date of this Order, unless otherwise ordered by the Commission.

ORDERED FURTHER, that jurisdiction over this matter is expressly retained for the purpose of entering such further Order or Orders as this Commission may deem just and proper.

The above by action of the Commission during a Special Administrative Session held on July 9, 2004.

REECE MCALISTER **EXECUTIVE SECRETARY**	**H. DOUG EVERETT** **CHAIRMAN**
DATE	**DATE**