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March 29, 1999

Ms. Blanca S. Bayo, Director  
Division of Records and Reporting  
Florida Public Service Commission  
2540 Shumard Oak Boulevard  
Tallahassee FL 32399-0870

Dear Ms. Bayo:

Enclosed are an original and twenty-five copies of Gulf Power Company's 1999 Ten Year Site Plan and is filed pursuant to Rule No. 25-22.071. Included in the Ten Year Site Plan is the Company's Clean Air Act Compliance update and is filed pursuant to Order No. PSC-93-1376-FOF-EI.

Sincerely,

Susan D. Ritenour  
Assistant Secretary and Assistant Treasurer

ACK \_\_\_\_\_

AFA \_\_\_\_\_  
          IW

APP \_\_\_\_\_

CAF \_\_\_\_\_ Enclosures

CMU \_\_\_\_\_  
          cc:

Beggs and Lane  
Jeffrey A. Stone, Esquire

CTR \_\_\_\_\_

EAG \_\_\_\_\_

LEG \_\_\_\_\_

LIN \_\_\_\_\_

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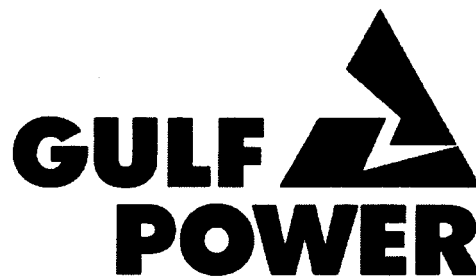
FPSC-RECORDS/REPORTING

ORIGINAL

# TEN YEAR SITE PLAN 1999 - 2008

FOR ELECTRIC GENERATING FACILITIES  
AND  
ASSOCIATED TRANSMISSION LINES

APRIL, 1999



A SOUTHERN COMPANY DOCUMENT NUMBER-DATE

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FPSO-RECORDS/REPORTING

**GULF POWER COMPANY  
TEN YEAR SITE PLAN**

**FOR ELECTRIC GENERATING FACILITIES  
AND  
ASSOCIATED TRANSMISSION LINES**

**Submitted To The  
State Of Florida  
Public Service Commission  
Division of Electric and Gas**

**APRIL 1, 1999**

## TABLE OF CONTENTS

	<u>Page</u>
<b>EXECUTIVE SUMMARY</b>	1
<b><u>CHAPTER I DESCRIPTION OF EXISTING FACILITIES</u></b>	
Description of Generating Facilities	5
Schedule 1 Existing Generating Facilities	7
System Map	9
<b><u>CHAPTER II FORECAST OF ELECTRIC POWER DEMAND AND ENERGY CONSUMPTION</u></b>	
Forecasting Documentation	
Overview	10
Methodology	10
I. Customer Forecast	10
II. Energy Sales Forecast	12
III. Peak Demand Forecast	21
IV. Conservation Programs	23
V. Renewable Energy	44
VI. Data Sources	45
VII. Detailed Forecast Results	45
Schedule 2.1 History and Forecast of Energy Consumption and Number of Customers by Customer Class	46
Schedule 2.2 History and Forecast of Energy Consumption and Number of Customers by Customer Class	47
Schedule 2.3 History and Forecast of Energy Consumption and Number of Customers by Customer Class	48

	<u>Page</u>
Schedule 3.1 History and Forecast of Summer Peak Demand	49
Schedule 3.2 History and Forecast of Winter Peak Demand	50
Schedule 3.3 History and Forecast of Annual Net Energy for Load	51
Schedule 4 Previous Year Actual and Two-Year Forecast of Peak Demand and Net Energy for Load by Month	52
Schedule 5 Fuel Requirements	53
Schedule 6.1 Energy Sources - GWH	54
Schedule 6.2 Energy Sources - % of NEL	55
 <b><u>CHAPTER III PLANNING ASSUMPTIONS AND PROCESSES</u></b>	
Integrated Resource Planning Process	56
Transmission Planning Process	61
Fuel Price Forecast Process	64
Southern Generic Forecast	65
Coal Price Forecast	67
Natural Gas Price Forecast	67
Site-Specific Fuel Projections	70
Strategic Issues	72
Environmental Concerns	74
Availability of System Interchange	79
Off-System Sales	79

**CHAPTER IV FORECAST OF FACILITIES REQUIREMENTS**

	Capacity Resource Alternatives	80
Schedule 7.1	Forecast of Capacity, Demand, and Scheduled Maintenance at Time Of Summer Peak	82
Schedule 7.2	Forecast of Capacity, Demand, and Scheduled Maintenance at Time Of Winter Peak	83
Schedule 8	Planned and Prospective Generating Facility Additions and Changes	84
Schedule 9	Status Report and Specifications of Proposed Generating Facilities	85
Schedule 10	Status Report and Specifications of Directly associated Transmission Lines	87

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**GULF POWER COMPANY**

**TEN-YEAR SITE PLAN**

**Executive Summary**

The Gulf Power Company 1999 Ten-Year Site Plan (TYSP) is filed with the Florida Public Service Commission (FPSC) in accordance with the requirements of Chapter 186.801, Florida Statutes as revised by the Legislature in 1995. That revision replaced the Florida Department of Community Affairs with the FPSC as the responsible agency for the TYSP's. This 1999 Ten-Year Site Plan for Gulf Power Company is being filed in compliance with the Commission's rules.

The 1999 TYSP contains documentation of assumptions, load forecast, fuel forecasts, the planning processes, existing resources, and future capacity needs and resources. The planning process for Gulf is tightly coordinated within the Southern electric system Integrated Resource Planning (IRP) process, as the Company participates along with the other Southern companies, Alabama Power, Georgia Power, Mississippi Power, and Savannah Electric & Power. Gulf Power Company shares in the benefits gained from planning a large system such as Southern, without the costs of a large planning staff of its own.

The capacity resource needs of the plan are driven by the demand forecast which already includes the projected demand-side measures embedded into it prior to entering the



generation mix process. The generation mix process uses PROVIEW® to screen the available technologies in order to produce a listing of preferred capacity resource plans from which to select the best, most cost-effective plan for the system. The resulting system resource needs are appropriately allocated among the operating companies based on reserve requirements, whereby each company chooses the best way in order to meet its capacity and reliability needs.

Gulf plans to use power purchases and reliance on Southern system resources, exclusively, until the year 2002. Due to the decreasing availability of firm power purchases, it is not feasible to replace the purchased power contracts when they expire in 2001. Gulf Power Company has determined that the most cost-effective way in which to meet its 2002 capacity obligations will be with the installation of a 540 MW natural gas-fired combined cycle generating unit at its existing Lansing Smith Generating Plant. This unit will be designated as Smith Unit 3. Smith Unit 3 is subject to the Florida Electrical Power Plant Siting Act (PPSA), Chapter 403, Part II, Florida Statutes. A Need Study document was filed with the Florida Public Service Commission (FPSC) on March 15, 1999 to support Gulf's petition to the FPSC for a determination of need for the project under Section 403.519, Florida Statutes.

On August 21, 1998, Gulf issued a capacity Request for Proposal (RFP) to seek alternatives to the Gulf-constructed

combined cycle unit. The offers included purchases of varying terms and MW size from proposed combined cycle units, combustion turbine units, and a cogeneration facility.

After evaluating the proposals received in response to the RFP, Gulf determined that the self-build option represented by Smith Unit 3 is the most cost-effective alternative. The location of the proposed unit in the Panama City area eliminates the need for additional transmission to integrate the unit into the Northwest Florida electric grid, and the unit will provide needed voltage support in the eastern portion of Gulf's service territory.

After the installation of Smith Unit 3, the Company plans to repower its existing Crist units 1, 2, and 3 by installing a "F" class combustion turbine (CT) and associated heat recovery steam generation (HRSG). This repowering is currently planned for 2007.

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CHAPTER I

DESCRIPTION OF EXISTING FACILITIES

## DESCRIPTION OF EXISTING FACILITIES

Gulf Power Company owns and operates three fossil - fueled generating facilities in Northwest Florida, has a 50% ownership in Mississippi Power Company's Daniel Electric Generating Facility, and has a 25% ownership in Georgia Power Company's Scherer Electric Generating Facility Unit #3. This consists of fourteen fossil steam units and one combustion turbine. Schedule 1 shows 1,038 MW of steam generation is located at the Crist Electric Generating Facility near Pensacola, Florida. The Lansing Smith Electric Generating Facility, near Panama City, Florida includes 355 MW of steam generation and 32 MW (summer rating) of combustion turbine facilities. The Scholz Electric Generating Facility, near Sneeds, Florida consists of 92 MW of steam generation. In May of 1998, the Company took ownership of three combustion turbines associated with an existing customer's cogeneration facility, adding another 14 MW to Gulf's existing capacity.

Including Gulf's ownership interest in Daniel fossil steam units 1 and 2 and Scherer fossil steam unit #3, Gulf has a total net summer generating capability of 2,284 MW and a total net winter generating capability of 2,293 MW as of June 1, 1999. In addition to the Company's installed generating resources, Gulf has a contract with Solutia Corporation for 19 MW of firm capacity that will be in effect until May 31, 2005.

The existing Gulf system in Northwest Florida including generating plants, substations, transmission lines and service area is shown on the system map on page 9. Data regarding Gulf's existing generating facilities is presented on Schedule 1.

UTILITY: GULF POWER COMPANY

SCHEDULE 1  
EXISTING GENERATING FACILITIES  
AS OF DECEMBER 31, 1998

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Plant Name	Unit No.	Location	Unit Type	Fuel		Fuel Transp		Alt. Fuel Days Use	Com'l In-Service Mo/Yr	Exptd Retmnt Mo/Yr	Gen Max Nameplate KW	Net Capability	
				Pri	Alt	Pri	Alt					Summer MW	Winter MW
Crist		Escambia County 25/1N/30W									<u>1,229,000</u>	<u>1,038.0</u>	<u>1,038.0</u>
	1		FS	NG	HO	PL	TK	--	1/45	12/11	28,125	24.0	24.0
	2		FS	NG	HO	PL	TK	--	6/49	12/11	28,125	24.0	24.0
	3		FS	NG	HO	PL	TK	--	9/52	12/11	37,500	35.0	35.0
	4		FS	C	NG	WA	PL	2	7/59	12/14	93,750	78.0	78.0
	5		FS	C	NG	WA	PL	3	6/61	12/16	93,750	80.0	80.0
	6		FS	C	NG	WA	PL	1	5/70	12/15	369,750	302.0	302.0
	7		FS	C	NG	WA	PL	1	8/73	12/18	578,000	495.0	495.0
Lansing Smith		Bay County 36/2S/15W									<u>381,850</u>	<u>386.2</u>	<u>394.6</u>
	1		FS	C	--	WA	--	--	6/65	12/15	149,600	162.0	162.0
	2		FS	C	--	WA	--	--	6/67	12/17	190,400	192.6	192.6
	A		CT	LO	--	TK	--	--	5/71	12/06	41,850	31.6	40.0
Scholz		Jackson County 12/3N/7W									<u>98,000</u>	<u>92.0</u>	<u>92.0</u>
	1		FS	C	--	RR	WA	--	3/53	12/11	49,000	46.0	46.0
	2		FS	C	--	RR	WA	--	10/53	12/11	49,000	46.0	46.0
(A) Daniel		Jackson County, MS 42/5S/6W									<u>548,250</u>	<u>478.4</u>	<u>478.4</u>
	1		FS	C	HO	RR	TK	--	9/77	12/27	274,125	239.2	239.2 (B)
	2		FS	C	HO	RR	TK	--	6/81	12/31	274,125	239.2	239.2 (B)
(A) Scherer	3	Monroe County, GA	FS	C	--	RR	--	--	1/87	12/42	222,750	223.3	223.3
Pea Ridge		Santa Rosa County 15/1N/29W									<u>14,250</u>	<u>14.4</u>	<u>14.4</u>
	1		CT	NG	--	PL	--	--	5/98	UNK	4,750	4.8	4.8
	2		CT	NG	--	PL	--	--	5/98	UNK	4,750	4.8	4.8
	3		CT	NG	--	PL	--	--	5/98	UNK	4,750	4.8	4.8
Total System 12/31/98											<u>2,232.3</u>	<u>2,240.7</u>	

7

Abbreviations:

Fuel

---

FS - Fossil Steam  
CT - Combustion Turbine  
NG - Natural Gas  
C - Coal  
LO - Light Oil  
HO - Heavy Oil

Fuel Transportation

---

PL - Pipeline  
WA - Water  
TK - Truck  
RR - Railroad

NOTE: (A) Unit capabilities shown represent Gulf's portion of Daniel Units 1 & 2 (50%) and Scherer Unit 3 (25%).

(B) Does not include 26 MW uprate expected to be available May 1999.



# GULF POWER COMPANY TRANSMISSION SYSTEM MAP



- Florida Power Corp. 230 KV
- 230 KV LINES
- 115 KV LINES
- - - 46 KV LINES
- ▲ GPCO SUBSTATION
- GPCO STEAM PLANT

FRANKLIN CO.



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CHAPTER II

FORECAST OF ELECTRIC POWER DEMAND AND  
ENERGY CONSUMPTION

## **LOAD FORECAST AND DSM DETAIL**

### **OVERVIEW**

This chapter includes a detailed description of Gulf's load forecasting methodology, a detailed discussion of its conservation programs, and tables presenting Gulf's detailed forecast results.

### **METHODOLOGY**

Gulf's total forecast employs a number of different techniques and methodologies, each applied to the task for which it is best suited. Many of the techniques take advantage of the extensive data made available through the Company's marketing efforts. These efforts are predicated on the philosophy of knowing and understanding the needs, perceptions and motivations of its customers and actively promoting wise and efficient uses of energy which satisfy customer needs. The following provides a description of Gulf's forecasting methodology.

#### **I. CUSTOMER FORECAST**

##### **A. RESIDENTIAL CUSTOMER FORECAST**

The immediate short-term forecast (0-2 years) of customers is based primarily on projections prepared by Gulf's district personnel. The districts remain abreast of local market and economic conditions within their service territories through direct contact with economic development agencies, developers, builders, lending institutions and other key contacts. The

projections prepared by the districts are based upon recent historical trends in customer gains and their knowledge of locally planned construction projects from which they are able to estimate the near-term anticipated customer gains. These projections are then analyzed for consistency and the incorporation of major construction projects and business developments is reviewed for completeness and accuracy. The end result is a near-term forecast of residential customers.

For the remaining forecast horizon, the Gulf Economic Model, an econometric model developed by Regional Financial Associates (RFA), is used in the development of residential customer projections. Projections of births, deaths, household size, and population by age groups are determined by past and projected trends. Migration is determined by economic growth relative to surrounding areas.

The number of households located in the eight counties in which Gulf provides service is computed by applying a household formation trend to the population by age group, and then by summing the number of households in each of five adult age categories. As indicated, there is a relationship between households, or residential customers, and the age structure of the population of the area, as well as household formation trends. The household formation trend is the product of initial year household formation rates in the Gulf service area and projected U.S. trends in household formation.

The forecast of residential customers is an outcome of the final section of the migration/demographic element of the model. The number of residential customers Gulf expects to serve is calculated by multiplying the total number of households located in Gulf's service area by the percentage of customers in these eight counties for which Gulf currently provides service.

#### **B. COMMERCIAL CUSTOMER FORECAST**

As in the residential sector, the immediate short-term forecast (0-2 years) of commercial customers, is prepared by Gulf's district personnel utilizing recent historical customer gains information and their knowledge of the local area economies and upcoming construction projects. A review of the assumptions, techniques and results for each district is undertaken, with special attention given to the incorporation of major commercial development projects.

Beyond the immediate short-term period, commercial customers are forecast as a function of residential customers and total real disposable income, reflecting the growth of commercial services to meet the needs of new and existing residents.

### **II. ENERGY SALES FORECAST**

#### **A. RESIDENTIAL SALES FORECAST**

The short-term (0-2 years) residential energy sales forecast is developed utilizing multiple regression

analyses. Monthly class energy use per customer per billing day is estimated based upon recent historical data, expected normal weather and projected price. The model output is then multiplied by the projected number of customers and billing days by month to expand to the total residential class.

The long-term residential energy sales forecast is prepared using the Residential End-Use Energy Planning System (REEPS), a model developed for the Electric Power Research Institute (EPRI) by Cambridge Systematics, Incorporated, under Project RP1211-2. The REEPS model integrates elements of both econometric and engineering end-use approaches to energy forecasting. Market penetrations and energy consumption rates for major appliance end-uses are treated explicitly. REEPS produces forecasts of appliance installations, operating efficiencies and utilization patterns for space heating, water heating, air conditioning and cooking, as well as other major end-uses. Each of these decisions is responsive to energy prices and demand-side initiatives, as well as household/dwelling characteristics and geographical variables.

The major behavioral responses in the simulation model have been estimated statistically from an analysis of household survey data. Surveys provide the data source required to identify the responsiveness of household energy decisions to prices and other variables.

The REEPS model forecasts energy decisions for a large number of different population segments. These segments represent households with different demographic and dwelling characteristics. Together, the population segments reflect the full distribution of characteristics in the customer population. The total service area forecast of residential energy decisions is represented as the sum of the choices of various segments. This approach enhances evaluation of the distributional impacts of various demand-side initiatives.

For each of the major end-uses, REEPS forecasts equipment purchases, efficiency and utilization choices. The model distinguishes among appliance installations in new housing, retrofit installations and purchases of portable units. Within the simulation, the probability of installing a given appliance in a new dwelling depends on the operating and performance characteristics of the competing alternatives, as well as household and dwelling features. The installation probabilities for certain end-use categories are highly interdependent.

The functional form of the appliance installation models is the multinomial logit or its generalization, the nested logit. The parameters of these models quantify the sensitivity of appliance installation choices to costs and other characteristics. The magnitudes of these parameters have been estimated statistically from household survey data.

Appliance operating efficiency and utilization rates are simulated in the REEPS model as interdependent decisions. Efficiency choice is dependent on operating cost at the planned utilization rate, while actual utilization depends on operating cost given the appliance efficiency. Appliance and building standards affect efficiency directly by mandating higher levels than those otherwise expected.

The sensitivity of efficiency and utilization decisions to costs, climate, household and dwelling size, and income has been estimated from historical survey data. Energy prices, income, and household and dwelling size significantly affect space conditioning and residual energy use. Household and dwelling size also influence water heating usage. Climate significantly impacts space heating and air conditioning.

Major appliance base year unit energy consumption (UEC) estimates are based on data developed by Regional Economic Research, Inc. (RER), the current EPRI contractor, from metered appliance data or conditioned energy demand regression analysis. The latter is a technique employed in the absence of metered observations of individual appliance usage, and involves the disaggregation of total household demand for electricity into appliance specific demand functions. All of the weather sensitive UEC estimates were adjusted for Gulf Power's weather conditions.

The energy forecast output from REEPS reflects the continued impacts of Gulf Power's GoodCents Home program and



efficiency improvements undertaken by customers as a result of Residential Energy audits, as well as conversions to higher efficiency outdoor lighting. This output is adjusted to reflect the anticipated incremental impacts of Gulf's DSM plan, approved in April, 1995. Additional information on the residential conservation programs and program features are provided in the Conservation section.

#### **B. COMMERCIAL SALES FORECAST**

The short-term (0-2 years) commercial energy sales forecast is also developed utilizing multiple regression analyses. Monthly class energy use per customer per billing day is estimated based upon recent historical data, expected normal weather and projected price. The model output is then multiplied by the projected number of customers and billing days by month to expand to the total commercial class.

COMMEND, a commercial end-use model developed by the Georgia Institute of Technology through EPRI Project RP1216-06, serves as the basis for Gulf's long-term commercial energy sales forecast. The COMMEND model is an extension of the capital-stock approach used in most econometric studies. This approach views the demand for energy as a product of three factors. The first of these factors is the physical stock of energy-using capital, the second factor is base year energy use, and the third is a utilization factor

representing utilization of equipment relative to the base year.

Changes in equipment utilization are modeled using short-run econometric fuel price elasticities. Fuel choice is forecast with a life-cycle cost/behavioral microsimulation submodel, and changes in equipment efficiency are determined using engineering and cost information for space heating, cooling and ventilation equipment and econometric elasticity estimates for the other end-uses (lighting, water heating, ventilation, cooking, refrigeration, and others).

Three characteristics of COMMEND distinguish it from traditional modeling approaches. First, the reliance on engineering relationships to determine future heating and cooling efficiency provides a sounder basis for forecasting long-run changes in space heating and cooling energy requirements than a pure econometric approach can supply. Second, the simulation model uses a variety of engineering data on the energy-using characteristics of commercial buildings. Third, COMMEND provides estimates of energy use detailed by end-use, fuel type and building type.

Annual building data from RFA and Gulf's most recent Commercial Market Survey provided much of the input data required for the COMMEND model. The model produces forecasts of energy use for the end-uses mentioned above, within each of the following business categories:

1. Food Stores
2. Offices
3. Retail and Personal Services
4. Public Utilities
5. Automotive Services
6. Restaurants
7. Elementary/Secondary Schools
8. Colleges/Trade Schools
9. Hospitals/Health Services
10. Hotels/Motels
11. Religious Organizations
12. Miscellaneous

The energy forecast output from COMMEND reflects the continued impacts of Gulf Power's Commercial GoodCents building program and efficiency improvements undertaken by customers as a result of Commercial Energy Audits and Technical Assistance Audits, as well as conversions to higher efficiency outdoor lighting. The output from COMMEND is adjusted to reflect the anticipated incremental impacts of Gulf's DSM plan, approved in April, 1995. Additional information on the Commercial Conservation programs and program features are provided in the Conservation section.

#### **C. INDUSTRIAL SALES FORECAST**

The short-term industrial energy sales forecast is developed using a combination of on-site surveys of major

industrial customers, trending techniques, and multiple regression analysis. Forty-four of Gulf's largest industrial customers are interviewed to identify load changes due to equipment additions, replacements or changes in operating characteristics.

The short-term forecast of monthly sales to these major industrial customers is a synthesis of the detailed survey information and historical monthly load factor trends. The forecast of short-term sales to the remaining smaller industrial customers is developed using multiple regression analysis.

The long-term forecast of industrial energy sales is based on econometric models of the chemical, pulp and paper, other manufacturing, and non-manufacturing sectors. The industrial forecast is further refined by accounting for expected self-generation installations. The industrial sales forecast is also adjusted to reflect the anticipated incremental impacts of Gulf's DSM plan, approved in April, 1995. Additional information on the conservation programs and program features are provided in the Conservation section.

#### **D. STREET LIGHTING SALES FORECAST**

The forecast of monthly energy sales to street lighting customers is based on projections of the number of fixtures in service, for each of the following fixture types:

HIGH PRESSURE SODIUM	MERCURY VAPOR
5,400 Lumen	3,200 Lumen
8,800 Lumen	7,000 Lumen
20,000 Lumen	9,400 Lumen
25,000 Lumen	17,000 Lumen
46,000 Lumen	48,000 Lumen

The projected number of fixtures by fixture type is developed from analyses of recent historical fixture data to discern the patterns of fixture additions and deletions. The estimated monthly kilowatt-hour consumption for each fixture type is multiplied by the projected number of fixtures in service to produce total monthly sales for a given type of fixture. This methodology allows Gulf to explicitly evaluate the impacts of lighting programs, such as mercury vapor to high pressure sodium conversions.

#### **E. WHOLESALE ENERGY FORECAST**

The short-term forecast of energy sales to wholesale customers is based on interviews with these customers, as well as recent historical data. A forecast of total monthly energy requirements at each wholesale delivery point is produced utilizing multiple regression analyses.

The long-term forecast is based on estimates of annual growth rates for each delivery point, according to future growth potential.

## **F. COMPANY USE ENERGY FORECAST**

The annual forecast for Company energy usage is based on recent historical values, with appropriate adjustments to reflect short-term increases in energy requirements for anticipated new Company facilities. The monthly spreads are derived using historical relationships between monthly and annual energy usage.

## **III. PEAK DEMAND FORECAST**

The peak demand forecast is prepared using the Hourly Electric Load Model (HELM), developed by ICF, Incorporated, for EPRI under Project RP1955-1. The model forecasts hourly electrical loads over the long-term.

Load shape forecasts have always provided an important input to traditional system planning functions. Forecasts of the pattern of demand have acquired an added importance due to structural changes in the demand for electricity and increased utility involvement in influencing load patterns for the mutual benefit of the utility and its customers.

HELM represents an approach designed to better capture changes in the underlying structure of electricity consumption. Rapid increases in energy prices during the 1970's and early 1980's brought about changes in the efficiency of energy-using equipment. Additionally, sociodemographic and microeconomic developments have changed the composition of electricity consumption, including changes in fuel shares, housing mix, household age and size,

construction features, mix of commercial services, and mix of industrial products.

In addition to these naturally occurring structural changes, utilities have become increasingly active in offering customers options which result in modified consumption patterns. An important input to the design of such demand-side programs is an assessment of their likely impact on utility system loads.

HELM has been designed to forecast electric utility load shapes and to analyze the impacts of factors such as alternative weather conditions, customer mix changes, fuel share changes, and demand-side programs. The HELM model provides forecasts of hourly class and system load curves by weighting and aggregating load shapes for individual end-use components.

Model inputs include energy forecasts and load shape data for the user-specified end-uses. Inputs are also required to reflect new technologies, rate structures and other demand-side programs. Model outputs include hourly system and class load curves, load duration curves, monthly system and class peaks, load factors and energy requirements by season and rating period.

The methodology embedded in HELM may be referred to as a "bottom-up" approach. Class and system load shapes are calculated by aggregating the load shapes of component end-uses. The system demand for electricity in hour  $i$  is modeled as the sum of demands by each end-use in hour  $i$ :

$$L_i = \sum_{R=1}^{N_R} L_{R,i} + \sum_{C=1}^{N_C} L_{C,i} + \sum_{I=1}^{N_I} L_{I,i} + \text{Misc}_i$$

Where:

$L_i$  = system demand for electricity in hour  $i$ ;

$N_R$  = number of residential end-use loads;

$N_C$  = number of commercial end-use loads;

$N_I$  = number of industrial end-use loads;

$L_{R,i}$  = demand for electricity by residential end-use  $R$  in hour  $i$ ;

$L_{C,i}$  = demand for electricity by commercial end-use  $C$  in hour  $i$ ;

$L_{I,i}$  = demand for electricity by industrial end-use  $I$  in hour  $i$ ;

$\text{Misc}_i$  = other demands (wholesale, street lighting, losses, company use) in hour  $i$ .

#### **IV. CONSERVATION PROGRAMS**

Gulf Power Company has been a pacesetter in the energy efficiency market since the development and implementation of the GoodCents Home program in the mid-70's. This program brought customer awareness, understanding and expectations regarding energy efficient construction standards in Northwest Florida to levels unmatched elsewhere. Since that time, the GoodCents Home program has seen many enhancements,



and has been widely accepted not only by customers, but by builders, contractors, consumers, and other electric utilities throughout the nation, providing clear evidence that selling efficiency to customers can be done successfully.

Gulf's forecast of energy sales and peak demands reflect the continued impacts of the Company's conservation programs. These forecasts also reflect the anticipated impacts of the new programs submitted in Gulf's Demand Side Management plan filed February 22, 1995 (Docket No. 941172-EI) as approved by the FPSC. The demand and energy reductions associated with these new programs have been updated to reflect a revised implementation schedule for the Advanced Energy Management (AEM) program in the residential sector.

The following provides a listing of Gulf's conservation programs:

Residential Programs:

1. GoodCents New Home
2. Heat Pump Upgrade
3. Resistance Heat to Heat Pump Upgrade
4. Air Conditioning Upgrade
5. Residential Energy Audit
6. Residential Mail-In Audit
7. *In Concert With The Environment*<sup>®</sup>
8. Geothermal Heat Pump
9. Advanced Energy Management
10. Outdoor Lighting Conversion

Commercial Programs:

1. Commercial GoodCents Bldg.
  2. Commercial Energy Audit
  3. Technical Assistance Audit
  4. Commercial Mail-In Audit
  5. Real Time Pricing Pilot
  6. Outdoor Lighting Conversion
- Street Lighting Conversion

The remainder of this section provides detailed descriptions of the conservation programs and program features in effect and estimates of reductions in peak demand and net energy for load reflected in the forecast as a result of these programs.

#### **A. RESIDENTIAL CONSERVATION**

In the residential sector, Gulf's GoodCents New Home program is designed to make cost effective increases in the efficiencies of the new home construction market. This is being achieved by placing greater requirements on cooling and water heating equipment efficiencies, proper HVAC sizing, increased insulation levels in walls, ceilings, and floors, and tighter restrictions on glass area and infiltration reduction practices. In addition, Gulf monitors proper quality installation of all the above energy features.

Gulf has several programs designed to make cost effective increases in efficiencies in the existing home market by requiring increased efficiency requirements on heating and cooling systems and improvements in air distribution system leakage. The A/C Upgrade program is designed to increase the efficiency of older central air conditioning units. The Heat Pump Upgrade program is designed to increase the efficiency of older heat pump units. The Resistance Heat to Heat Pump Upgrade program is

designed to replace older heating and air conditioning systems with new high efficiency heat pump systems.

Further conservation benefits are achieved in the existing home market with Gulf's Residential Energy Audit program which is designed to provide existing residential customers with cost-effective energy conserving recommendations and options that increase comfort and reduce energy operating costs. The goal of this program is to upgrade the customer's home to the GoodCents Improved Home standard by providing specific whole house recommendations. As an extension to this program, Gulf offers a Residential mail-in audit option to enhance customer participation and increase the overall program effectiveness.

*In Concert With The Environment®* is an environmental and energy awareness program that is being implemented in the 8th and 9th grade science classes in Gulf Power Company's service area. The program shows students how everyday energy use impacts the environment and how using energy wisely increases environmental quality. *In Concert With The Environment®* is brought to students who are already making decisions which impact the country's energy supply and the environment. Wise energy use today can best be achieved by linking environmental benefits to wise energy-use activities and by educating both present and future consumers on how to live "in concert with the environment". The program encourages participation by all household members through a take-home Energy Survey, Energy

Survey Results, and student educational handbook and is considered an extension of Gulf's Residential Audit Program.

The Residential Geothermal Heat Pump Program reduces the demand and energy requirements of new and existing residential customers through the promotion and installation of advanced and emerging geothermal systems. Geothermal heat pumps also provide significant benefits to participating customers in the form of reduced operating costs and increased comfort levels, and are superior to other available heating and cooling technologies with respect to source efficiency and environmental impacts. Gulf Power's Geothermal Heat Pump program is designed to overcome existing market barriers, specifically, lack of consumer awareness, knowledge and acceptance of this technology. The program additionally promotes efficiency levels well above current market conditions.

The Advanced Energy Management (AEM) Program provides Gulf Power's customers with a means of conveniently and automatically controlling and monitoring their energy purchases in response to prices that vary during the day and by season in relation to the Company's cost of producing or purchasing energy. The AEM System allows the customer to control more precisely the amount of electricity purchased for heating, cooling, water heating, and other selected loads; to purchase electric energy on a variable spot price rate; and to monitor at any time, and as often as desired, the use of electricity and its cost in dollars, both for the

billing period to date and on a forecast basis to the end of the period. The various components of the AEM System installed in the customer's home, as well as the components installed at Gulf Power, provide constant communication between customer and utility. The combination of the AEM System and Gulf's innovative variable rate concept will provide consumers with the opportunity to modify their usage of electricity in order to purchase energy at prices that are somewhat lower to significantly lower than standard rates a majority of the time. Further, the communication capabilities of the AEM System allow Gulf to send a critical price signal to the customer's premises during extreme peak load conditions. The signal results in a reduction attributable to predetermined thermostat and relay settings chosen by the individual participating customer. The customer's pre-programmed instructions regarding their desired comfort levels adjust electricity use for heating, cooling, water heating and other appliances automatically. Therefore, the customer's control of their electric bill is accomplished by allowing them to choose different comfort levels at different price levels in accordance with their individual lifestyles.

Additional conservation benefits are realized in the residential sector through Gulf's Outdoor Lighting program by conversion of existing, less efficient mercury vapor outdoor lighting to higher efficient high pressure sodium lighting.

## **B. COMMERCIAL/INDUSTRIAL CONSERVATION**

In the commercial sector, Gulf's GoodCents Building program is designed to make cost effective increases in efficiencies in both new and existing commercial buildings with requirements resulting in energy conserving investments that address the thermal efficiency of the building envelope, interior lighting, heating and cooling equipment efficiency, and solar glass area. Additional recommendations are made, where applicable, on energy conserving options that include thermal storage, heat recovery systems, water heating heat pumps, solar applications, energy management systems, and high efficiency outdoor lighting.

The Commercial Energy Audit (EA) and Technical Assistance Audit (TAA) programs are designed to provide commercial customers with assistance in identifying cost effective energy conservation opportunities and introduce them to various technologies which will lead to improvements in the energy efficiency level of their business. The program is designed with enough flexibility to allow for a simple walk through analysis (EA) or a detailed economic evaluation of potential energy improvements through a more in-depth audit process (TAA) which includes equipment energy usage monitoring, computer energy modeling, life cycle equipment cost analysis, and feasibility studies. As an extension to this program, Gulf offers a Commercial mail-in

audit option to enhance customer participation and increase the overall program effectiveness.

Gulf's Real Time Pricing pilot program is designed to take advantage of customer price response to achieve peak demand reductions. Initial participation was limited to a maximum of 12 customers with actual demand of 2,000 KW or higher for this pilot program. In 1997 Gulf received approval to increase the participation level to a maximum of 24 customers. Customer participation is voluntary. Due to the nature of the pricing arrangement included in this program, there are some practical limitations to a customer's ability to participate. These limitations include the ability to purchase energy under a pricing plan which includes price variation and unknown future prices; the transaction costs associated with receiving, evaluating, and acting on prices received on a daily basis; customer risk management policy; and other technical/economic factors. The RTP Pilot program has been very successful and is expected to play a major role in affording Gulf Power the opportunity to meet its conservation objectives. Information gained through this program is being used to design a permanent RTP program.

### **C. STREET LIGHTING CONVERSION**

Gulf's Street Lighting conversion program is designed to achieve additional conservation benefits by conversion of existing less efficient mercury vapor outdoor, street and

roadway lighting to higher efficient high pressure sodium lighting.

#### **D. CONSERVATION RESULTS SUMMARY**

The following Tables 1 through 11 provide detailed estimates of the reductions in peak demand and net energy for load resulting from Gulf's conservation programs. These reductions are verified through on-going monitoring of Gulf's major conservation programs and reflect estimates of conservation undertaken by customers as a result of Gulf Power Company's involvement. Conservation which has taken place without Gulf's involvement has contributed to further unquantifiable reductions in demand and net energy for load. These unquantifiable additional reductions are captured in the time series regressions in Gulf's energy forecasts and in the demand model projections.

Tables 1 through 4 reflect the total impacts of Gulf's new and existing conservation programs. The impacts of the existing programs that have been in place for several years are shown separately in Tables 5 through 8 and the anticipated impacts of Gulf's newer programs, submitted in Gulf's Demand Side Management Plan filed in 1995, are provided in tables 9 through 11.

Table 1, below, provides the total savings in peak demand and net energy for load achieved by Gulf through its conservation programs. In 1997, Gulf's DSM programs successfully reduced summer peak demand by 244 megawatts



(MW), winter peak demand by 269 MW, and net energy for load by 523 million kilowatt-hours (KWH).

As shown in this table, by the in-service date of Smith Unit 3 in 2002, Gulf expects to achieve a total cumulative annual reduction of 365 MW in summer peak demand, 423 MW in winter peak demand, and an annual energy savings of over 650 million KWH from what it would have been absent such programs. This includes 121 MW of incremental summer peak reductions over the period from 1997 through 2002. These reductions are expected to grow to a total savings of 489 MW of summer peak demand, 590 MW of winter peak demand and an annual energy savings of over 770 million KWH by the year 2008.

**TABLE 1**

HISTORICAL  
TOTAL CONSERVATION PROGRAMS  
CUMULATIVE ANNUAL REDUCTIONS AT GENERATOR

	SUMMER PEAK (KW)	WINTER PEAK (KW)	NET ENERGY FOR LOAD (KWH)
1997	243,928	268,522	522,804,539

1999 FORECAST  
TOTAL CONSERVATION PROGRAMS  
INCREMENTAL ANNUAL REDUCTIONS AT GENERATOR

	SUMMER PEAK (KW)	WINTER PEAK (KW)	NET ENERGY FOR LOAD (KWH)
1998	10,865	13,620	22,225,417
1999	30,489	36,692	30,353,374
2000	29,077	37,123	30,034,257
2001	25,943	34,501	22,988,653
2002	24,236	32,955	21,829,790
2003	23,875	32,408	21,756,342
2004	24,095	32,793	21,948,046
2005	20,322	27,386	19,861,207
2006	20,353	27,393	19,872,752
2007	17,717	23,522	18,348,712
2008	17,729	23,526	18,324,246

1999 FORECAST  
TOTAL CONSERVATION PROGRAMS  
CUMULATIVE ANNUAL REDUCTIONS AT GENERATOR

	SUMMER PEAK (KW)	WINTER PEAK (KW)	NET ENERGY FOR LOAD (KWH)
1998	254,793	282,143	545,029,957
1999	285,282	318,835	575,383,331
2000	314,359	355,958	605,417,587
2001	340,301	390,460	628,406,241
2002	364,536	423,414	650,236,032
2003	388,410	455,821	671,992,375
2004	412,506	488,615	693,940,422
2005	432,828	515,999	713,801,629
2006	453,180	543,392	733,674,381
2007	470,897	566,914	752,023,094
2008	488,625	590,440	770,347,340

**TABLE 2**

HISTORICAL  
 TOTAL RESIDENTIAL CONSERVATION PROGRAMS  
 CUMULATIVE ANNUAL REDUCTIONS AT GENERATOR

	SUMMER PEAK (KW)	WINTER PEAK (KW)	NET ENERGY FOR LOAD (KWH)
1997	106,849	163,319	271,253,667

1999 FORECAST  
 TOTAL RESIDENTIAL CONSERVATION PROGRAMS  
 INCREMENTAL ANNUAL REDUCTIONS AT GENERATOR

	SUMMER PEAK (KW)	WINTER PEAK (KW)	NET ENERGY FOR LOAD (KWH)
1998	10,922	11,511	11,755,771
1999	25,804	34,591	20,028,692
2000	25,592	35,022	19,718,790
2001	24,159	33,387	18,698,570
2002	22,585	31,842	17,553,458
2003	22,162	31,295	17,469,787
2004	22,369	31,680	17,700,793
2005	18,626	26,273	15,667,821
2006	18,633	26,280	15,682,688
2007	15,993	22,409	14,159,565
2008	15,995	22,413	14,165,936

1999 FORECAST  
 TOTAL RESIDENTIAL CONSERVATION PROGRAMS  
 CUMULATIVE ANNUAL REDUCTIONS AT GENERATOR

	SUMMER PEAK (KW)	WINTER PEAK (KW)	NET ENERGY FOR LOAD (KWH)
1998	117,771	174,831	283,009,439
1999	143,575	209,422	303,038,131
2000	169,167	244,444	322,756,920
2001	193,326	277,832	341,455,491
2002	215,910	309,674	359,008,948
2003	238,072	340,968	376,478,736
2004	260,442	372,649	394,179,529
2005	279,068	398,921	409,847,350
2006	297,701	425,201	425,530,038
2007	313,694	447,610	439,689,603
2008	329,689	470,023	453,855,539

**TABLE 3**

HISTORICAL  
TOTAL COMMERCIAL/INDUSTRIAL DSM PROGRAMS  
CUMULATIVE ANNUAL REDUCTIONS AT GENERATOR

	SUMMER PEAK (KW)	WINTER PEAK (KW)	NET ENERGY FOR LOAD (KWH)
1997	137,080	105,203	241,038,261

1999 FORECAST  
TOTAL COMMERCIAL/INDUSTRIAL DSM PROGRAMS  
INCREMENTAL ANNUAL REDUCTIONS AT GENERATOR

	SUMMER PEAK (KW)	WINTER PEAK (KW)	NET ENERGY FOR LOAD (KWH)
1998	(58)	2,109	10,242,169
1999	4,685	2,101	10,115,326
2000	3,485	2,101	10,115,326
2001	1,784	1,114	4,092,695
2002	1,651	1,113	4,092,695
2003	1,713	1,113	4,092,695
2004	1,726	1,113	4,092,695
2005	1,696	1,113	4,092,695
2006	1,720	1,113	4,092,695
2007	1,724	1,113	4,092,695
2008	1,734	1,113	4,092,695

1999 FORECAST  
TOTAL COMMERCIAL/INDUSTRIAL DSM PROGRAMS  
CUMULATIVE ANNUAL REDUCTIONS AT GENERATOR

	SUMMER PEAK (KW)	WINTER PEAK (KW)	NET ENERGY FOR LOAD (KWH)
1998	137,022	107,312	251,280,430
1999	141,707	109,413	261,395,756
2000	145,192	111,514	271,511,082
2001	146,975	112,628	275,603,777
2002	148,626	113,740	279,696,473
2003	150,338	114,853	283,789,168
2004	152,064	115,966	287,881,864
2005	153,760	117,078	291,974,559
2006	155,479	118,191	296,067,254
2007	157,203	119,304	300,159,950
2008	158,936	120,417	304,252,645

**TABLE 4**

HISTORICAL  
TOTAL OTHER DSM PROGRAMS  
CUMULATIVE ANNUAL REDUCTIONS AT GENERATOR

	SUMMER PEAK (KW)	WINTER PEAK (KW)	NET ENERGY FOR LOAD (KWH)
1997	0	0	10,512,611

1999 FORECAST  
TOTAL OTHER DSM PROGRAMS  
INCREMENTAL ANNUAL REDUCTIONS AT GENERATOR

	SUMMER PEAK (KW)	WINTER PEAK (KW)	NET ENERGY FOR LOAD (KWH)
1998	0	0	227,477
1999	0	0	209,356
2000	0	0	200,141
2001	0	0	197,388
2002	0	0	183,637
2003	0	0	193,860
2004	0	0	154,558
2005	0	0	100,691
2006	0	0	97,369
2007	0	0	96,452
2008	0	0	65,615

1999 FORECAST  
TOTAL OTHER DSM PROGRAMS  
CUMULATIVE ANNUAL REDUCTIONS AT GENERATOR

	SUMMER PEAK (KW)	WINTER PEAK (KW)	NET ENERGY FOR LOAD (KWH)
1998	0	0	10,740,088
1999	0	0	10,949,444
2000	0	0	11,149,585
2001	0	0	11,346,973
2002	0	0	11,530,611
2003	0	0	11,724,471
2004	0	0	11,879,029
2005	0	0	11,979,720
2006	0	0	12,077,089
2007	0	0	12,173,541
2008	0	0	12,239,156

**TABLE 5**

HISTORICAL  
TOTAL EXISTING DSM PROGRAMS  
CUMULATIVE ANNUAL REDUCTIONS AT GENERATOR

	SUMMER PEAK (KW)	WINTER PEAK (KW)	NET ENERGY FOR LOAD (KWH)
1997	213,772	262,789	513,626,118

1999 FORECAST  
TOTAL EXISTING DSM PROGRAMS  
INCREMENTAL ANNUAL REDUCTIONS AT GENERATOR

	SUMMER PEAK (KW)	WINTER PEAK (KW)	NET ENERGY FOR LOAD (KWH)
1998	9,169	6,199	14,708,361
1999	8,542	6,693	13,636,079
2000	8,034	6,646	12,920,322
2001	6,710	6,539	9,374,828
2002	6,228	6,523	8,704,575
2003	6,237	6,533	8,733,912
2004	6,211	6,507	8,642,576
2005	6,211	6,507	8,587,647
2006	6,218	6,514	8,599,192
2007	6,228	6,524	8,618,452
2008	6,231	6,527	8,593,986

1999 FORECAST  
TOTAL EXISTING DSM PROGRAMS  
CUMULATIVE ANNUAL REDUCTIONS AT GENERATOR

	SUMMER PEAK (KW)	WINTER PEAK (KW)	NET ENERGY FOR LOAD (KWH)
1998	222,941	268,989	528,334,480
1999	231,483	275,682	541,970,559
2000	239,517	282,328	554,890,880
2001	246,226	288,868	564,265,709
2002	252,453	295,390	572,970,285
2003	258,689	301,922	581,704,198
2004	264,901	308,430	590,346,775
2005	271,112	314,935	598,934,422
2006	277,329	321,449	607,533,614
2007	283,557	327,973	616,152,067
2008	289,787	334,500	624,746,053

**TABLE 6**

HISTORICAL  
RESIDENTIAL EXISTING DSM PROGRAMS  
CUMULATIVE ANNUAL REDUCTIONS AT GENERATOR

	SUMMER PEAK (KW)	WINTER PEAK (KW)	NET ENERGY FOR LOAD (KWH)
1997	105,333	160,983	269,326,134

1999 FORECAST  
RESIDENTIAL EXISTING DSM PROGRAMS  
INCREMENTAL ANNUAL REDUCTIONS AT GENERATOR

	SUMMER PEAK (KW)	WINTER PEAK (KW)	NET ENERGY FOR LOAD (KWH)
1998	7,273	5,968	8,941,405
1999	6,690	6,470	8,014,087
2000	6,182	6,423	7,307,545
2001	5,842	6,316	6,775,935
2002	5,360	6,300	6,119,433
2003	5,369	6,310	6,138,547
2004	5,343	6,284	6,086,513
2005	5,343	6,284	6,085,451
2006	5,350	6,291	6,100,318
2007	5,360	6,301	6,120,495
2008	5,363	6,304	6,126,866

1999 FORECAST  
RESIDENTIAL EXISTING DSM PROGRAMS  
CUMULATIVE ANNUAL REDUCTIONS AT GENERATOR

	SUMMER PEAK (KW)	WINTER PEAK (KW)	NET ENERGY FOR LOAD (KWH)
1998	112,606	166,952	278,267,540
1999	119,296	173,422	286,281,627
2000	125,478	179,845	293,589,171
2001	131,320	186,162	300,365,107
2002	136,679	192,462	306,484,539
2003	142,048	198,771	312,623,087
2004	147,392	205,056	318,709,600
2005	152,735	211,339	324,795,051
2006	158,085	217,630	330,895,369
2007	163,445	223,931	337,015,864
2008	168,808	230,235	343,142,730

**TABLE 7**

HISTORICAL  
 COMMERCIAL/INDUSTRIAL EXISTING DSM PROGRAMS  
 CUMULATIVE ANNUAL REDUCTIONS  
 AT GENERATOR

	SUMMER PEAK (KW)	WINTER PEAK (KW)	NET ENERGY FOR LOAD (KWH)
1997	108,439	101,806	233,787,373

1999 FORECAST  
 COMMERCIAL/INDUSTRIAL EXISTING DSM PROGRAMS  
 INCREMENTAL ANNUAL REDUCTIONS AT GENERATOR

	SUMMER PEAK (KW)	WINTER PEAK (KW)	NET ENERGY FOR LOAD (KWH)
1998	1,896	231	5,539,479
1999	1,852	223	5,412,636
2000	1,852	223	5,412,636
2001	868	223	2,401,505
2002	868	223	2,401,505
2003	868	223	2,401,505
2004	868	223	2,401,505
2005	868	223	2,401,505
2006	868	223	2,401,505
2007	868	223	2,401,505
2008	868	223	2,401,505

1999 FORECAST  
 COMMERCIAL/INDUSTRIAL EXISTING DSM PROGRAMS  
 CUMULATIVE ANNUAL REDUCTIONS AT GENERATOR

	SUMMER PEAK (KW)	WINTER PEAK (KW)	NET ENERGY FOR LOAD (KWH)
1998	110,335	102,037	239,326,852
1999	112,187	102,260	244,739,488
2000	114,039	102,483	250,152,124
2001	114,906	102,706	252,553,629
2002	115,774	102,928	254,955,135
2003	116,641	103,151	257,356,640
2004	117,509	103,374	259,758,146
2005	118,377	103,596	262,159,651
2006	119,244	103,819	264,561,156
2007	120,112	104,042	266,962,662
2008	120,979	104,265	269,364,167



**TABLE 8**

HISTORICAL  
OTHER EXISTING DSM PROGRAMS  
CUMULATIVE ANNUAL REDUCTIONS AT GENERATOR

	SUMMER PEAK (KW)	WINTER PEAK (KW)	NET ENERGY FOR LOAD (KWH)
1997	0	0	10,512,611

1999 FORECAST  
OTHER EXISTING DSM PROGRAMS  
INCREMENTAL ANNUAL REDUCTIONS AT GENERATOR

	SUMMER PEAK (KW)	WINTER PEAK (KW)	NET ENERGY FOR LOAD (KWH)
1998	0	0	227,477
1999	0	0	209,356
2000	0	0	200,141
2001	0	0	197,388
2002	0	0	183,637
2003	0	0	193,860
2004	0	0	154,558
2005	0	0	100,691
2006	0	0	97,369
2007	0	0	96,452
2008	0	0	65,615

1999 FORECAST  
OTHER EXISTING DSM PROGRAMS  
CUMULATIVE ANNUAL REDUCTIONS AT GENERATOR

	SUMMER PEAK (KW)	WINTER PEAK (KW)	NET ENERGY FOR LOAD (KWH)
1998	0	0	10,740,088
1999	0	0	10,949,444
2000	0	0	11,149,585
2001	0	0	11,346,973
2002	0	0	11,530,611
2003	0	0	11,724,471
2004	0	0	11,879,029
2005	0	0	11,979,720
2006	0	0	12,077,089
2007	0	0	12,173,541
2008	0	0	12,239,156

**TABLE 9**

HISTORICAL  
TOTAL NEW DSM PROGRAMS  
CUMULATIVE ANNUAL REDUCTIONS AT GENERATOR

	SUMMER PEAK (KW)	WINTER PEAK (KW)	NET ENERGY FOR LOAD (KWH)
1997	30,156	5,733	9,178,421

1999 FORECAST  
TOTAL NEW DSM PROGRAMS  
INCREMENTAL ANNUAL REDUCTIONS AT GENERATOR

	SUMMER PEAK (KW)	WINTER PEAK (KW)	NET ENERGY FOR LOAD (KWH)
1998	1,696	7,421	7,517,056
1999	21,947	29,999	16,717,295
2000	21,043	30,477	17,113,935
2001	19,233	27,962	13,613,825
2002	18,008	26,432	13,125,215
2003	17,638	25,875	13,022,430
2004	17,884	26,286	13,305,470
2005	14,111	20,879	11,273,560
2006	14,135	20,879	11,273,560
2007	11,489	16,998	9,730,260
2008	11,498	16,999	9,730,260

1999 FORECAST  
TOTAL NEW DSM PROGRAMS  
CUMULATIVE ANNUAL REDUCTIONS AT GENERATOR

	SUMMER PEAK (KW)	WINTER PEAK (KW)	NET ENERGY FOR LOAD (KWH)
1998	31,852	13,154	16,695,477
1999	53,799	43,153	33,412,772
2000	74,842	73,630	50,526,707
2001	94,075	101,592	64,140,532
2002	112,083	128,024	77,265,747
2003	129,721	153,899	90,288,177
2004	147,605	180,185	103,593,647
2005	161,716	201,064	114,867,207
2006	175,851	221,943	126,140,767
2007	187,340	238,941	135,871,027
2008	198,838	255,940	145,601,287

**TABLE 10**

HISTORICAL  
RESIDENTIAL NEW DSM PROGRAMS  
CUMULATIVE ANNUAL REDUCTIONS AT GENERATOR

	SUMMER PEAK (KW)	WINTER PEAK (KW)	NET ENERGY FOR LOAD (KWH)
1997	1,516	2,336	1,927,533

1999 FORECAST  
RESIDENTIAL NEW DSM PROGRAMS  
INCREMENTAL ANNUAL REDUCTIONS AT GENERATOR

	SUMMER PEAK (KW)	WINTER PEAK (KW)	NET ENERGY FOR LOAD (KWH)
1998	3,649	5,543	2,814,366
1999	19,114	28,121	12,014,605
2000	19,410	28,599	12,411,245
2001	18,317	27,071	11,922,635
2002	17,225	25,542	11,434,025
2003	16,793	24,985	11,331,240
2004	17,026	25,396	11,614,280
2005	13,283	19,989	9,582,370
2006	13,283	19,989	9,582,370
2007	10,633	16,108	8,039,070
2008	10,632	16,109	8,039,070

1999 FORECAST  
RESIDENTIAL NEW DSM PROGRAMS  
CUMULATIVE ANNUAL REDUCTIONS AT GENERATOR

	SUMMER PEAK (KW)	WINTER PEAK (KW)	NET ENERGY FOR LOAD (KWH)
1998	5,165	7,879	4,741,899
1999	24,279	36,000	16,756,504
2000	43,689	64,599	29,167,749
2001	62,006	91,670	41,090,384
2002	79,231	117,212	52,524,409
2003	96,024	142,197	63,855,649
2004	113,050	167,593	75,469,929
2005	126,333	187,582	85,052,299
2006	139,616	207,571	94,634,669
2007	150,249	223,679	102,673,739
2008	160,881	239,788	110,712,809

**TABLE 11**

HISTORICAL  
 COMMERCIAL/INDUSTRIAL NEW DSM PROGRAMS  
 CUMULATIVE ANNUAL REDUCTIONS AT GENERATOR

	SUMMER PEAK (KW)	WINTER PEAK (KW)	NET ENERGY FOR LOAD (KWH)
1997	28,641	3,397	7,250,888

1999 FORECAST  
 COMMERCIAL/INDUSTRIAL NEW DSM PROGRAMS  
 INCREMENTAL ANNUAL REDUCTIONS AT GENERATOR

	SUMMER PEAK (KW)	WINTER PEAK (KW)	NET ENERGY FOR LOAD (KWH)
1998	(1,954)	1,878	4,702,690
1999	2,833	1,878	4,702,690
2000	1,633	1,878	4,702,690
2001	916	891	1,691,190
2002	783	890	1,691,190
2003	845	890	1,691,190
2004	858	890	1,691,190
2005	828	890	1,691,190
2006	852	890	1,691,190
2007	856	890	1,691,190
2008	866	890	1,691,190

1999 FORECAST  
 COMMERCIAL/INDUSTRIAL NEW DSM PROGRAMS  
 CUMULATIVE ANNUAL REDUCTIONS AT GENERATOR

	SUMMER PEAK (KW)	WINTER PEAK (KW)	NET ENERGY FOR LOAD (KWH)
1998	26,687	5,275	11,953,578
1999	29,520	7,153	16,656,268
2000	31,153	9,031	21,358,958
2001	32,069	9,922	23,050,148
2002	32,852	10,812	24,741,338
2003	33,697	11,702	26,432,528
2004	34,555	12,592	28,123,718
2005	35,383	13,482	29,814,908
2006	36,235	14,372	31,506,098
2007	37,091	15,262	33,197,288
2008	37,957	16,152	34,888,478

## V. RENEWABLE ENERGY

Gulf initiated implementation of a "Green Pricing" pilot program, *Solar for Schools*, to obtain funding for the installation of solar technologies in participating school facilities combined with energy conservation education of students. Initial solicitation began in September, 1996 and has resulted in participation of over 333 customers contributing \$18,171 through December, 1998. A prototype installation at a local middle school has been completed and the experience gained at this site will be used to design future *Solar for Schools* installations.

District heating and cooling plants are an older fundamental application of large central station heating and cooling equipment for service to multiple premises in close proximity. These systems are typically located in college or school settings as well as some military bases and industrial plants.

Within Gulf's service area there exist a number of these systems which were appropriate or seemed appropriate at the time of their installation. Current day considerations for energy pricing, operating and maintenance expenses have resulted in many of these systems becoming uneconomical and decommissioned. Future installations of district heating and cooling plants of any consequence hinge primarily upon the opportunity for optimum application of this technology. The very dispersed construction of low

rise buildings which are characteristic of the building demographics in Gulf Power's service area yield no significant opportunities for district heating and cooling that are economically viable on the planning horizon.

## **VI. DATA SOURCES**

The following data sources were utilized in the development of Gulf's projections:

1. Gulf Power Company historical billing data.
2. Gulf Power Company historical survey data.
3. Gulf Power Company historical load research data.
4. Historical weather data from NOAA and Weather Service Corp.
5. Historical data from the Florida Statistical Abstracts produced by the Bureau of Economic and Business Research, University of Florida.
6. Economic outlook including population projections, households, and other economic indicators from Regional Financial Associates. Data sources cited by RFA include the Bureau of Labor Statistics, Bureau of Economic Analysis, and the U.S. Bureau of Census.

## **VII. DETAILED FORECAST RESULTS**

The following Schedules 2.1 through 4 provide the detailed forecast results.

**GULF POWER COMPANY**

**Schedule 2.1**

History and Forecast of Energy Consumption and  
Number of Customers by Customer Class

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Rural and Residential						Commercial		
<u>Year</u>	<u>Population</u> *	<u>Members per Household</u>	<u>GWH</u>	<u>Average No. of Customers</u>	<u>Average KWH Consumption Per Customer</u>	<u>GWH</u>	<u>Average No. of Customers</u>	<u>Average KWH Consumption Per Customer</u>
1989	662,784	2.65	3,294	250,038	13,173	2,169	33,500	64,761
1990	677,866	2.66	3,361	255,129	13,173	2,218	33,957	65,305
1991	689,901	2.66	3,455	259,395	13,320	2,273	34,372	66,120
1992	703,860	2.65	3,597	265,374	13,553	2,369	36,009	65,796
1993	726,046	2.67	3,713	271,594	13,671	2,433	38,477	63,242
1994	747,459	2.69	3,752	278,215	13,486	2,549	39,989	63,739
1995	760,195	2.68	4,014	283,717	14,148	2,708	41,007	66,043
1996	769,246	2.67	4,160	287,752	14,457	2,809	42,381	66,271
1997	791,009	2.67	4,119	296,497	13,894	2,898	43,955	65,928
1998	810,649	2.66	4,438	304,413	14,577	3,112	45,510	68,379
1999	830,557	2.66	4,558	312,479	14,587	3,147	46,614	67,512
2000	849,054	2.65	4,692	320,074	14,658	3,273	48,150	67,980
2001	863,541	2.65	4,772	326,118	14,632	3,346	49,347	67,812
2002	877,537	2.64	4,864	331,931	14,653	3,419	50,294	67,977
2003	891,566	2.64	4,958	337,784	14,677	3,496	51,208	68,275
2004	905,608	2.64	5,057	343,661	14,715	3,572	52,130	68,528
2005	919,427	2.63	5,170	349,473	14,793	3,650	53,059	68,793
2006	933,241	2.63	5,272	355,302	14,839	3,725	53,978	69,012
2007	947,114	2.62	5,382	361,172	14,901	3,805	54,904	69,295
2008	960,867	2.62	5,503	367,016	14,995	3,881	55,836	69,507
<b>CAAG</b>								
89-98	2.3%	0.1%	3.4%	2.2%	1.1%	4.1%	3.5%	0.6%
98-03	1.9%	-0.2%	2.2%	2.1%	0.1%	2.4%	2.4%	0.0%
98-08	1.7%	-0.2%	2.2%	1.9%	0.3%	2.2%	2.1%	0.2%

\* Historical and projected figures include portions of Escambia, Santa Rosa, Okaloosa, Bay, Walton, Washington, Holmes, and Jackson counties served by Gulf Power Company.

**GULF POWER COMPANY**

**Schedule 2.2**

History and Forecast of Energy Consumption and  
Number of Customers by Customer Class

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Year	Industrial			Railroads and Railways GWH	Street & Highway Lighting GWH	Other Sales to Public Authorities GWH	Total Sales to Ultimate Consumers GWH
	GWH	Average No. of Customers	Average KWH Consumption Per Customer				
1989	2,095	229	9,147,029	0	16	0	7,574
1990	2,178	247	8,817,297	0	17	0	7,774
1991	2,117	260	8,143,878	0	16	0	7,861
1992	2,179	262	8,318,456	0	16	0	8,161
1993	2,030	268	7,574,388	0	16	0	8,192
1994	1,847	280	6,596,837	0	16	0	8,164
1995	1,795	276	6,502,731	0	16	0	8,534
1996	1,808	281	6,434,470	0	17	0	8,794
1997	1,903	277	6,870,216	0	17	0	8,938
1998	1,834	263	6,971,767	0	18	0	9,401
1999	1,938	285	6,801,516	0	18	0	9,662
2000	2,029	294	6,902,869	0	18	0	10,013
2001	2,076	297	6,989,061	0	19	0	10,213
2002	2,095	300	6,982,317	0	19	0	10,396
2003	2,093	303	6,907,883	0	19	0	10,566
2004	2,091	306	6,833,259	0	19	0	10,739
2005	2,087	309	6,753,665	0	19	0	10,926
2006	2,091	312	6,703,402	0	20	0	11,108
2007	2,094	315	6,648,572	0	20	0	11,300
2008	2,071	318	6,511,389	0	20	0	11,475
<b>CAAG</b>							
89-98	-1.5%	1.6%	-3.0%	0.0%	1.5%	0.0%	2.4%
98-03	2.7%	2.9%	-0.2%	0.0%	1.0%	0.0%	2.4%
98-08	1.2%	1.9%	-0.7%	0.0%	0.9%	0.0%	2.0%



**GULF POWER COMPANY**

**Schedule 2.3**

History and Forecast of Energy Consumption and  
Number of Customers by Customer Class

(1)	(2)	(3)	(4)	(5)	(6)
<u>Year</u>	Sales for Resale <u>GWH</u>	Utility Use & Losses <u>GWH</u>	Net Energy for Load <u>GWH</u>	Other Customers <u>(Average No.)</u>	Total No. of Customers
1989	276	528	8,378	63	283,830
1990	294	545	8,612	68	289,400
1991	296	547	8,704	68	294,095
1992	299	389	8,849	74	301,719
1993	317	565	9,074	79	310,419
1994	316	487	8,967	93	318,578
1995	336	582	9,452	119	325,119
1996	347	521	9,662	157	330,571
1997	342	607	9,887	215	340,944
1998	356	645	10,402	262	350,447
1999	350	645	10,657	322	359,699
2000	361	668	11,041	352	368,870
2001	369	682	11,263	371	376,132
2002	378	694	11,468	382	382,906
2003	386	706	11,658	391	389,685
2004	393	718	11,850	400	396,496
2005	399	730	12,056	409	403,249
2006	406	743	12,257	418	410,009
2007	412	756	12,468	427	416,817
2008	418	768	12,661	436	423,605
<b>CAAG</b>					
89-98	2.9%	2.2%	2.4%	17.1%	2.4%
98-03	1.6%	1.8%	2.3%	8.3%	2.1%
98-08	1.6%	1.8%	2.0%	5.2%	1.9%

Note: Sales for Resale and Net Energy for Load include contracted energy allocated to certain customers by Southeastern Power Administration (SEPA).

**GULF POWER COMPANY**

**Schedule 3.1**

History and Forecast of Summer Peak Demand - MW  
Base Case

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
<u>Year</u>	<u>Total</u>	<u>Wholesale</u>	<u>Retail</u>	<u>Interruptible</u>	<u>Residential Load Management</u>	<u>Residential Conservation</u>	<u>Comm/Ind Load Management</u>	<u>Comm/Ind Conservation</u>	<u>Net Firm Demand</u>
1989	1,858	60	1,799	0	0	79	0	81	1,698
1990	1,954	69	1,885	0	0	81	0	87	1,785
1991	1,923	64	1,860	0	0	83	0	92	1,748
1992	2,018	71	1,947	0	0	86	0	97	1,836
1993	2,096	76	2,021	0	0	88	0	102	1,906
1994	1,999	72	1,927	0	0	92	0	104	1,803
1995	2,265	82	2,183	0	0	96	0	122	2,048
1996	2,196	79	2,118	0	0	100	0	127	1,969
1997	2,284	75	2,208	0	0	107	0	137	2,040
1998	2,425	82	2,342	16	0	118	0	137	2,154
1999	2,460	76	2,385	29	0	144	0	142	2,175
2000	2,521	77	2,445	29	0	169	0	145	2,207
2001	2,574	78	2,496	29	0	193	0	147	2,234
2002	2,630	80	2,549	29	0	216	0	149	2,265
2003	2,668	81	2,587	29	0	238	0	150	2,280
2004	2,722	83	2,639	29	0	260	0	152	2,309
2005	2,780	84	2,696	29	0	279	0	154	2,347
2006	2,836	85	2,751	29	0	298	0	155	2,383
2007	2,896	87	2,809	29	0	314	0	157	2,425
2008	2,955	88	2,867	25	0	330	0	159	2,466
<b>CAAG</b>									
89-98	3.0%	3.6%	3.0%	100.0%	0.0%	4.6%	0.0%	6.0%	2.7%
98-03	1.9%	-0.2%	2.0%	12.7%	0.0%	15.1%	0.0%	1.9%	1.1%
98-08	2.0%	0.7%	2.0%	4.5%	0.0%	10.8%	0.0%	1.5%	1.4%

NOTE 1: Includes contracted capacity and energy allocated to certain Resale customers by Southeastern Power Administration (SEPA)

NOTE 2: The forecasted interruptible amounts shown in col (5) are included here for information purposes only. The projected demands shown in column (2), column (4) and column (10) do not reflect the impacts of interruptible. Gulf treats interruptible as a supply side resource.

**GULF POWER COMPANY**

**Schedule 3.2**

History and Forecast of Winter Peak Demand - MW  
Base Case

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
<u>Year</u>	<u>Total</u>	<u>Wholesale</u>	<u>Retail</u>	<u>Interruptible</u>	<u>Residential Load Management</u>	<u>Residential Conservation</u>	<u>Comm/Ind Load Management</u>	<u>Comm/Ind Conservation</u>	<u>Net Firm Demand</u>
88-89	1,762	56	1,706	0	0	113	0	95	1,554
89-90	2,038	57	1,980	0	0	120	0	97	1,821
90-91	1,649	50	1,600	0	0	126	0	98	1,425
91-92	1,772	60	1,712	0	0	132	0	99	1,541
92-93	1,820	61	1,759	0	0	140	0	100	1,579
93-94	2,055	72	1,983	0	0	145	0	101	1,809
94-95	1,993	71	1,922	0	0	150	0	102	1,740
95-96	2,404	82	2,322	0	0	157	0	103	2,144
96-97	2,208	80	2,127	0	0	163	0	105	1,939
97-98	1,974	61	1,913	0	0	175	0	107	1,692
98-99	2,390	76	2,314	28	0	209	0	109	2,071
99-00	2,461	77	2,384	28	0	244	0	112	2,105
00-01	2,511	78	2,433	28	0	278	0	113	2,121
01-02	2,558	80	2,478	28	0	310	0	114	2,135
02-03	2,595	81	2,513	28	0	341	0	115	2,139
03-04	2,643	83	2,560	28	0	373	0	116	2,154
04-05	2,694	84	2,610	28	0	399	0	117	2,178
05-06	2,743	85	2,658	28	0	425	0	118	2,200
06-07	2,796	87	2,709	28	0	448	0	119	2,229
07-08	2,848	88	2,760	24	0	470	0	120	2,258
<b>CAAG</b>									
89-98	1.3%	1.0%	1.3%	100.0%	0.0%	5.0%	0.0%	1.3%	0.9%
98-03	5.6%	5.8%	5.6%	0.0%	0.0%	14.3%	0.0%	1.4%	4.8%
98-08	3.7%	3.7%	3.7%	-1.7%	0.0%	10.4%	0.0%	1.2%	2.9%

NOTE 1: Includes contracted capacity and energy allocated to certain Resale customers by Southeastern Power Administration (SEPA)

NOTE 2: The forecasted interruptible amounts shown in col (5) are included here for information purposes only. The projected demands shown in column (2), column (4) and column (10) do not reflect the impacts of interruptible. Gulf treats interruptible as a supply side resource.

**GULF POWER COMPANY**

**Schedule 3.3**

History and Forecast of Annual Net Energy for Load - GWH

Base Case

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<u>Year</u>	<u>Total</u>	<u>Residential Conservation</u>	<u>Comm/Ind Conservation</u>	<u>Retail</u>	<u>Wholesale</u>	<u>Utility Use &amp; Losses</u>	<u>Net Energy for Load</u>	<u>Load Factor %</u>
1989	8,763	221	165	7,574	276	528	8,378	56.3%
1990	9,019	227	180	7,774	294	545	8,612	55.1%
1991	9,128	233	191	7,861	296	547	8,704	56.8%
1992	9,291	239	202	8,161	299	389	8,849	54.9%
1993	9,537	247	216	8,192	317	565	9,074	54.3%
1994	9,443	254	222	8,164	316	487	8,967	56.8%
1995	9,942	263	227	8,534	336	582	9,452	52.7%
1996	10,167	273	232	8,794	347	521	9,662	55.9%
1997	10,410	282	241	8,938	342	607	9,887	55.3%
1998	10,947	294	251	9,401	356	645	10,402	55.1%
1999	11,232	314	261	9,662	350	645	10,657	55.9%
2000	11,647	334	272	10,013	361	668	11,041	57.1%
2001	11,891	353	276	10,213	369	682	11,263	57.6%
2002	12,119	371	280	10,396	378	694	11,468	57.8%
2003	12,330	388	284	10,566	386	706	11,658	58.4%
2004	12,544	406	288	10,739	393	718	11,850	58.6%
2005	12,769	422	292	10,926	399	730	12,056	58.6%
2006	12,991	438	296	11,108	406	743	12,257	58.7%
2007	13,220	452	300	11,300	412	756	12,468	58.7%
2008	13,431	466	304	11,475	418	768	12,661	58.6%
<b><u>CAAG</u></b>								
89-98	2.5%	3.2%	4.8%	2.4%	2.9%	2.2%	2.4%	-0.2%
98-03	2.4%	5.7%	2.5%	2.4%	1.6%	1.8%	2.3%	1.1%
98-08	2.1%	4.7%	1.9%	2.0%	1.6%	1.8%	2.0%	0.6%

NOTE: Wholesale and total columns include contracted capacity and energy allocated to certain Resale customers by Southeastern Power Administration (SEPA).

**GULF POWER COMPANY**

**Schedule 4**

Previous Year Actual and Two Year Forecast of Peak Demand and Net Energy for Load by Month

(1)	(2)	(3)	(4)	(5)	(6)	(7)
	1998 Actual		1999 Forecast		2000 Forecast	
	Peak Demand	NEL	Peak Demand	NEL	Peak Demand	NEL
<u>Month</u>	<u>MW</u>	<u>GWH</u>	<u>MW</u>	<u>GWH</u>	<u>MW</u>	<u>GWH</u>
January	1,486	756	2,071	886	2,105	911
February	1,518	676	1,768	715	1,755	745
March	1,692	743	1,615	761	1,687	795
April	1,335	698	1,492	746	1,582	791
May	1,918	945	1,842	896	1,926	937
June	2,112	1,111	2,121	1,106	2,098	1,101
July	2,112	1,145	2,175	1,127	2,207	1,149
August	2,154	1,119	2,113	1,128	2,146	1,156
September	1,988	949	1,978	942	2,089	1,000
October	1,787	821	1,574	770	1,628	797
November	1,369	685	1,486	719	1,557	753
December	1,462	755	1,845	861	1,918	906

52

NOTE: Includes contracted capacity and energy allocated to certain Resale customers by Southeastern Power Administration (SEPA)

Utility: Gulf Power Company

Schedule 5  
Fuel Requirements

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
	<u>Fuel Requirements</u>		<u>Units</u>	<u>Actual 1997</u>	<u>Actual 1998</u>	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>
(1)	Nuclear		Trillion BTU	None	None	None	None	None	None	None	None	None	None	None	None
(2)	Coal		1000 TON	5,000	5,540	6,060	5,633	5,405	5,244	4,945	4,736	4,979	5,000	5,051	5,244
(3)	Residual	Total	1000 BBL	0	0	0	0	0	0	0	0	0	0	0	0
(4)		Steam	1000 BBL	0	0	0	0	0	0	0	0	0	0	0	0
(5)		CC	1000 BBL	None	None	None	None	None	None	None	None	None	None	None	None
(6)		CT	1000 BBL	None	None	None	None	None	None	None	None	None	None	None	None
(7)		Diesel	1000 BBL	None	None	None	None	None	None	None	None	None	None	None	None
(8)	Distillate	Total	1000 BBL	30	64	18	18	17	18	20	19	20	19	20	24
(9)		Steam	1000 BBL	23	18	16	16	16	17	19	18	19	18	20	24
(10)		CC	1000 BBL	None	None	None	None	None	None	None	None	None	None	None	None
(11)		CT	1000 BBL	7	46	2	2	1	1	1	1	1	1	0	0
(12)		Diesel	1000 BBL	None	None	None	None	None	None	None	None	None	None	None	None
(13)	Natural Gas	Total	1000 MCF	955	2,783	1,511	1,492	883	18,229	29,186	30,046	29,746	27,809	35,360	37,847
(14)		Steam	1000 MCF	955	2,783	1,511	1,492	883	826	863	997	805	788	0	0
(15)		CC	1000 MCF	None	None	None	None	None	17,403	28,323	29,049	28,941	27,021	35,360	37,847
(16)		CT	1000 MCF	None	None	None	None	None	None	None	None	None	None	None	None
(17)	Other		Trillion BTU	None	None	None	None	None	None	None	None	None	None	None	None

CHAPTER III

PLANNING ASSUMPTIONS AND PROCESSES

Utility: Gulf Power Company

Schedule 6.1  
Energy Sources

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Energy Sources			Units	Actual 1997	Actual 1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
(1)	Annual Firm Interchange		GWH	(647)	(1,730)	(3,040)	(1,978)	(1,290)	(3,199)	(3,929)	(3,343)	(3,584)	(3,122)	(4,126)	(4,625)
(2)	Nuclear		GWH	None	None	None	None	None	None	None	None	None	None	None	None
(3)	Coal		GWH	10,389	11,723	13,390	12,714	12,291	11,847	11,157	10,644	11,184	11,248	11,362	11,744
(4)	Residual	Total	GWH	0	0	0	0	0	0	0	0	0	0	0	0
(5)		Steam	GWH	0	0	0	0	0	0	0	0	0	0	0	0
(6)		CC	GWH	None	None	None	None	None	None	None	None	None	None	None	None
(7)		CT	GWH	None	None	None	None	None	None	None	None	None	None	None	None
(8)		Diesel	GWH	None	None	None	None	None	None	None	None	None	None	None	None
(9)	Distillate	Total	GWH	3	19	1	1	1	1	1	1	1	1	0	0
(10)		Steam	GWH	None	None	None	None	None	None	None	None	None	None	None	None
(11)		CC	GWH	None	None	None	None	None	None	None	None	None	None	None	None
(12)		CT	GWH	3	19	1	1	1	1	1	1	1	1	0	0
(13)		Diesel	GWH	None	None	None	None	None	None	None	None	None	None	None	None
(14)	Natural Gas	Total	GWH	44	242	201	200	159	2,718	4,329	4,446	4,415	4,130	5,232	5,542
(15)		Steam	GWH	44	172	99	97	57	53	56	65	51	50	0	0
(16)		CC	GWH	None	None	None	None	None	2,563	4,171	4,278	4,262	3,978	5,130	5,439
(17)		CT	GWH	None	70	102	103	102	102	102	103	102	102	102	103
(18)	NUGs		GWH	98	148	105	104	102	101	100	102	40	0	0	0
(19)	Net Energy for Load		GWH	9,887	10,402	10,657	11,041	11,263	11,468	11,658	11,850	12,056	12,257	12,468	12,661

NOTE: Includes contracted energy allocated to certain resale customers by Southeastern Power Administration (SEPA), energy generated and sold under existing power sales contracts, and energy from projected short term firm purchases.



Utility: Gulf Power Company

Schedule 6.2  
Energy Sources

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
	Energy Sources		Units	Actual 1997	Actual 1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
(1)	Annual Firm Interchange		%	(6.54)	(16.63)	(28.53)	(17.92)	(11.45)	(27.90)	(33.70)	(28.21)	(29.73)	(25.47)	(33.09)	(36.53)
(2)	Nuclear		%	None	None	None	None	None	None	None	None	None	None	None	None
(3)	Coal		%	105.08	112.70	125.65	115.15	109.13	103.30	95.70	89.82	92.77	91.77	91.13	92.76
(4)	Residual	Total	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
(5)		Steam	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
(6)		CC	%	None	None	None	None	None	None	None	None	None	None	None	None
(7)		CT	%	None	None	None	None	None	None	None	None	None	None	None	None
(8)		Diesel	%	None	None	None	None	None	None	None	None	None	None	None	None
(9)	Distillate	Total	%	0.03	0.18	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00
(10)		Steam	%	None	None	None	None	None	None	None	None	None	None	None	None
(11)		CC	%	None	None	None	None	None	None	None	None	None	None	None	None
(12)		CT	%	0.03	0.18	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00
(13)		Diesel	%	None	None	None	None	None	None	None	None	None	None	None	None
(14)	Natural Gas	Total	%	0.45	2.33	1.89	1.81	1.41	23.70	37.13	37.52	36.62	33.70	41.96	43.77
(15)		Steam	%	0.45	1.65	0.93	0.88	0.51	0.46	0.48	0.55	0.42	0.41	0.00	0.00
(16)		CC	%	None	None	None	None	None	None	35.78	36.10	35.35	32.45	41.15	42.96
(17)		CT	%	None	None	0.96	0.93	0.91	0.89	0.87	0.87	0.85	0.83	0.82	0.81
(18)	NUGs		%	0.99	1.42	0.99	0.94	0.91	0.88	0.86	0.86	0.33	0.00	0.00	0.00
(19)	Net Energy for Load		%	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

## **THE INTEGRATED RESOURCE PLANNING PROCESS**

Gulf Power Company's Integrated Resource Planning (IRP) process begins with a team of experts from within and outside the Southern electric system that meets to discuss current and historical economic trends and conditions as well as future expected economic conditions and most probable occurrences which would impact the Southern electric system's business over the next twenty to twenty-five years. This economic panel decides what the various escalation and inflation rates will be for the various components that impact the financial condition of the Company. This group is the source for the assumptions surrounding general inflation and escalation regarding fuel, construction costs, labor rates and variable O&M.

In addition to this activity, there are a number of activities which are conducted in parallel with one another in the IRP process. These activities include the energy and demand forecasting, fuel price forecasting, technology screening analysis and evaluation, technology engineering cost estimation modeling, and miscellaneous issues and assumptions determinations. In addition to the changes of these assumptions, utilities have become increasingly active in offering customers options which result in modified consumption patterns. An important input to the design of such demand-side programs is an assessment of their likely impact on utility system loads.

As mentioned earlier, Gulf's forecast of energy sales and peak demand reflect the continued impacts of our conservation programs. Furthermore, an update of demand-side measure cost and benefits is conducted in order to perform cost-effectiveness evaluations against the selected supply-side technologies in the integration process.

A number of existing generating units on the Southern electric system are also evaluated with respect to their currently planned retirement dates as well as the economics and appropriateness of possible repowering over the planning horizon. The repowering evaluation is particularly important as a possible competing technology with the other unit addition technologies. The evaluations are extremely important in order to maximize the benefit of existing investment from both a capital and an operating and maintenance expense basis.

Additionally, an analysis of the market for power purchases is performed in order to determine the cost-effectiveness in comparison to the available supply-side and demand-side options. Power purchases are looked at from both a near-term and long-term basis as a possible means of meeting the system's demand requirements. It is important to remember that power purchases can be procured from utility sources as well as non-utility generators.

It is important to note, once again, that up to this point the supply side of the integrated resource planning process is focusing on the Southern electric system as a whole which has as its planning criterion a 13.5% target reserve margin for the year 1999 and beyond. This reserve margin is the optimum economic point where the system can meet its energy and demand requirements taking into account load forecast error, abnormal weather conditions, and unit-forced outage conditions. It also takes into account the cost of adding additional generation balanced with the societal cost of not serving all the energy requirements of the customer.

Once the necessary assumptions are determined, the technologies are screened to the most acceptable candidates, the necessary planning inputs are defined and the generation mix analysis is initiated. The supply-side technology candidates are input into PROVIEW®, the generation mix model, in specific MW block sizes for selection over the planning horizon for the entire Southern electric system. The main optimization tool used in the mix analysis is the PROVIEW® model. Although this model uses many data inputs and assumptions in the process of optimizing system generation additions, the key assumptions are load forecasts, DSOs, candidate units, reserve margin, cost of capital, and escalation rates.

PROVIEW® uses a dynamic programming technique to develop the optimum resource mix. This technique allows PROVIEW® to evaluate for every year all the many combinations of generation additions that satisfy the reserve margin constraint. Annual system operating costs are simulated and are added to the construction costs required to build each combination of resource additions. A least cost resource addition schedule is developed by evaluating each year sequentially and comparing the results with each other. A least cost resource plan is developed only after reviewing many construction options.

PROVIEW® produces a number of different combinations over the planning horizon which evaluates both the capital cost components for unit additions as well as the operating and maintenance cost of existing and future supply option additions. The program produces a report which ranks all of the different combinations with respect to the total net present value cost (objective function) over the entire twenty year planning horizon. The leading combinations from the program are then evaluated for reasonableness and validity. Once again, it is important to note that supply option additions out of the PROVIEW® program are for the entire Southern electric system and are reflective of the various technology candidates selected.

After the Southern electric system results are verified, each individual operating company's specific needs

over the planning horizon are evaluated. Each company is involved in recommending the type and timing of its unit additions. When all companies are satisfied with their capacity additions, and the sum matches the system need, the system base supply-side plan is complete. The result of this allocation is an individual operating company supply plan as it would fit within the Southern electric system planning criteria.

Once the individual operating company supply plans are determined, it is necessary to evaluate demand-side options as a cost-effective alternative to the supply plan. After the incorporation of the cost effective demand-side impacts, a final integrated resource plan for the individual operating companies is produced.

Finally, a sanity check of the plan as well as a financial analysis of the impact of the plan are performed. The plan is analyzed for changes in load forecast as well as fuel price variations, as sensitivities, in order to assess the impact on the system's cost. Once the plan has proven to be robust and financially feasible, it is reviewed with and presented for approval to executive personnel.

In summary, the Southern electric system's integrated resource planning process involves a significant amount of manpower and computer resources in order to produce a truly least-cost, integrated demand-side and supply-side resource

plan. During the entire process, we are continually looking at a broad range of alternatives in order to meet the system's projected demand and energy requirements. The result of the Southern electric system's integrated resource planning process is an integrated plan which can meet the needs of our customers in a cost-effective and reliable manner.

The Integrated Resource Planning process is a very manpower-intensive activity. The Southern electric system has recently decided that it would only perform a "full-blown" IRP on every third year with what are called "updates" for the interim years. These updated plans merely take the changes in the demand and energy forecast and any major changes to other assumptions and remixes to assure the companies that the IRP is still valid. Likewise, most sensitivities are suspended for the update plans in an effort to conserve manpower and costs. The main reason we have chosen to perform updates rather than put forth the effort to do a full-blown IRP is that we have not observed things to be changing such in recent years to make a significant difference from year to year.

#### **TRANSMISSION PLANNING PROCESS**

The transmission system is not studied as a part of the Integrated Resource Planning (IRP) Process, but it is studied, nonetheless, for reliability purposes. Commonly, a

transmission system is viewed as a medium used to transport electric power from its generation source to the point of its consumption under a number of system conditions, known as contingencies. The results of the IRP, particularly with regard to location of future generating units, is factored into transmission studies in order to determine what the impacts of various generation site options have on the transmission system. The system is studied under different contingencies for various load levels to insure that the system can operate adequately without exceeding conductor thermal and system voltage limits.

When the study reveals a problem with the transmission system that warrants the consideration of correcting to restore its reliability, a number of possible solutions are identified. These solutions and their costs are evaluated to determine which is the most cost-effective. Once it is concluded which solution is chosen to correct the problem, a capital budget expenditure request is prepared for executive approval. It should be noted that not all thermal overloads or voltage limit violations warrant solving due to the magnitude of the problem or because the probability of occurrence is insufficient to justify the capital investment of the solution.

The current IRP update calls for Gulf Power Company to make a series of purchased power arrangements until the end of the year 2001. The planned transmission is adequate to



handle these purchased power transactions during the time of Gulf's needs. It has been and will continue to be Gulf's practice to perform a transmission analysis of all viable purchased power proposals to determine any transmission constraints and formulate a plan, if any, to most cost-effectively solve the problems prior to proceeding with negotiations for the agreement.

## **FUEL PRICE FORECAST PROCESS**

### **FUEL PRICE FORECASTS**

Fuel price forecasts are used for a variety of purposes within the Southern electric system (SES), including such diverse uses as long-term generation planning and short-term fuel budgeting. Southern's fuel price forecasting process is designed to support these various uses.

The delivered price of any fuel consists of two components, the commodity price and the transportation cost. Commodity prices are forecast as mine-mouth prices for coal or well-head prices for natural gas. Because mine-mouth coal prices vary by source, sulfur content and Btu level, Southern prepares commodity price forecasts for 12 different coal classifications used on the Southern system. Because natural gas and oil prices do not experience the same variations, Southern prepares a single commodity price forecast for each of these fuels.

The level of detail with which transportation costs are projected depends on the purpose for which the forecast will be used. Generic transportation costs that reflect an average cost for delivery within Southern's territory are used in the delivered price forecast used for modeling generic unit additions in the Integrated Resource Planning (IRP) process. Site-specific transportation costs are developed for existing units to produce delivered price forecasts for use both in the IRP process and in fuel

budgeting. Similarly, when site-specific unit additions are under consideration, site-specific transportation costs are developed for each option.

Given the proposed resource additions in this site plan, the following discussion will focus on the commodity price forecasts for coal and natural gas, and on the site-specific forecasts for Smith Unit 3 and the generating facilities proposed in response to Gulf's Request for Proposals (RFP).

#### **SOUTHERN GENERIC FORECAST**

Each year, Southern develops a fuel price forecast for coal, oil, and natural gas, which extends through the Company's 10-year planning horizon. This forecast is developed by a fuel panel consisting of fuel procurement managers at each of the five operating companies, with input from Southern Company Services fuel staff and outside consultants ("Fuel Panel").

The fuel price forecasting process begins with an annual Fossil Fuel Price Workshop that is held with representatives from recognized leaders in energy-related economic forecasting and transportation-related industries. Presenters at the last fuel price workshop included representatives from Resource Data International, J. D. Energy Inc., Hill and Associates, Data Resource International, Fieldston Company, and Criton Company.

During the Fossil Fuel Price Workshop, each fuel procurement representative presents their "base case" forecast and assumptions, and high and low fuel price scenarios are discussed. A question and answer period allows for opposing views and debates on forecasts.

After the workshop, presentations by the SCS Fuel Services group reference the outside consultant forecasts and identify any major assumption differences. The Fuel Panel then consolidates both internal and external forecasts and assumptions to derive its commodity forecast for each type of fuel. The Fuel Panel's 1998 commodity price forecasts for 1.0% sulfur coal, oil, and natural gas, which were used in the economic analysis of Gulf's generating alternatives, are included in Table 12 below.

**TABLE 12**  
**SOUTHERN GENERIC FUEL PRICE FORECAST**  
**(\$/MMBtu)**

	<u>COAL</u>	<u>NAT. GAS</u>	<u>OIL</u>
1999	1.071	2.28	3.94
2000	1.080	2.28	4.06
2001	1.089	2.28	4.18
2002	1.098	2.28	4.30
2003	1.107	2.28	4.43
2004	1.115	2.28	4.58
2005	1.125	2.47	4.72
2006	1.134	2.62	4.87
2007	1.143	2.79	5.02
2008	1.152	2.96	5.18

## **COAL PRICE FORECAST**

The information provided during the Fuel Panel meeting is used to develop the SES forecast of generic coal prices. The major influences that drive the assumptions for the coal forecast are relative expected demand for specific qualities of coal and transportation from the source. As Phase II of the Clean Air Act of 1990 approaches, the variety of suitable coal quality narrows and tends to have an upward pressure on coal commodity prices. However, as more substitution of natural gas for coal as an energy resource for new resource additions takes place, it is expected that coal prices will once again stabilize.

The generic coal price used in the IRP process is based on an average expectation of coal commodity cost combined with average transportation fees. This serves as a basis for the fuel costs associated with the pulverized coal candidate technology in the mix analyses. This generic fuel commodity price is also used with plant specific transportation fees in combination with a plant's contract coal prices to develop the existing fuel price projection for the Company's budget process.

## **NATURAL GAS PRICE FORECAST**

The natural gas price forecast for wellhead natural gas reflects a "relaxed" view of the scarce resource theory. Past views by consultants and the U.S. Department of Energy

(DOE) would suggest that natural gas resources were rapidly declining and that reserves would be more difficult and costly to find. However, new technological innovations have resulted in a paradigm shift in the "scarce resource" theory. The new consensus is that gas resources are sufficient to meet the growing demand with moderate nominal dollar increases in price during the planning period. Dramatic improvements in producers' ability to find and develop natural gas reserves have prompted suppliers to have a bullish outlook on future markets. In the past two years, success rates in drilling offshore exploration wells have improved from 25% to 90% for most producers. In addition, new completion techniques such as horizontal drilling have increased production per well substantially. Lastly, new production methods are allowing producers to drill in very deep water at a lower cost. The result is expected to be a plentiful supply of relatively inexpensive volumes of gas in the near future.

#### **NATURAL GAS AVAILABILITY**

Assuming the construction of additional pipeline facilities, there are sufficient natural gas supplies available in the Southeastern United States to support full load operation of Smith Unit 3.

During the winter months, U.S. natural gas demand can reach 100 billion cubic feet (Bcf) per day. Unfortunately, the current maximum natural gas supplied through imports and

domestic production volumes peaks at 56 to 60 Bcf per day. In order to offset this capacity shortage, storage delivery is necessary.

Since U.S. natural gas demand in the summertime is significantly less, only about 42 to 45 Bcf per day, large end users and local distribution companies, such as Alagasco, buy extra volumes to fill huge underground gas storage fields. Typically, the markets purchase from 10 to 12 Bcf per day to fill storage during the summer months. This activity results in average gas demand reaching usage levels of 52 to 57 Bcf per day. This allows producers to operate wells at 90-95% of capacity year round.

There are indicators that during the time period 1999 and 2005, gas supply in the SES region will improve substantially. Major producers and interstate pipelines have proposed wide-scale expansion of pipelines in the Louisiana, Mississippi, and Alabama offshore areas. Suppliers forecast that an additional 2 Bcf per day will be delivered to the market by 1999. Another 4 Bcf per day should be available by the year 2005. Additionally, Canadian producers and pipelines have announced their plans to increase gas imports by 2 Bcf per day by 2000. These developments suggest that by 2005, U.S. gas supplies (specifically the SES region) should increase 15-16% above current levels. This translates into sufficient gas being available for all new gas-fired electric generation, including Smith Unit 3. It also means that average annual

gas prices should drop in the 1998 to 2000 time period as reflected in the natural gas price forecast discussed in the Southern Generic Forecast section above.

#### **SITE-SPECIFIC FUEL PROJECTIONS**

Although the generic fuel forecast is useful in the IRP process for determining the preferred type of generating unit additions, it is inappropriate for use when evaluating site specific generation alternatives. For site-specific reviews, it is necessary to develop a fuel projection that specifically addresses the fuel supply that would be available to that site. This is the process that was used during both the self-build and RFP evaluations for Gulf.

The evaluations of both the RFP responses and the final self-build option were based on the gas commodity prices contained in the Fuel Panel's 1998 forecast. This provided a uniform basis for comparison. If necessary, adjustments were made to reflect any cost differences due to natural gas supply at a point other than the Henry hub, and any differences due to the specifics of the proposal, such as a commodity price adder.

To obtain site-specific costs for each alternative, transportation costs were added to the commodity forecast. In the case of the RFP respondents, the transportation adders were those quoted in the respective proposals. In the case of Gulf's self-build option, the transportation adders



reflected the rates offered in response to Gulf's September, 1998 solicitation for firm natural gas transportation.

In some cases, an RFP respondent stated that it planned to use either interruptible transportation or recallable released firm transportation, but would supply fuel oil backup. In those cases, fuel oil was assumed to be used for periods when gas transportation would likely be unavailable. The Fuel Panel's generic oil price forecast was used for this purpose, with transportation adjustments for delivery to the specific plant site.

By using the Fuel Panel's commodity price forecast in all the evaluations, SCS ensured that the competing proposals were compared on a fair, consistent basis.

## STRATEGIC ISSUES

As mentioned earlier, Gulf's immediate needs for additional supply-side resources will come from purchased power arrangements which will afford the Company a great deal of flexibility and less risk exposure. The flexibility of purchases allows the Company to react quickly to changes that may occur over the next few years without serious negative financial impacts. Gulf fully expects to build new generating capacity in the future to maintain reliability.

Upon expiration of the purchase power arrangements in 2002, Gulf plans to utilize a combined cycle planned unit to be constructed at its Lansing Smith Generating Plant. Prior to moving forward with the certification process for this unit, Gulf issued a Request for Proposals (RFP) in order to solicit potential cost-effective alternatives to the Company's construction of this combined cycle unit. After performing the economic evaluations of the proposals, Gulf selected as its most cost-effective option Smith Unit 3 to meet its 2002 capacity needs.

Another important strategic advantage for Gulf is its association and planning as a part of the Southern electric system. Being able to draw on the planning services of Southern Company Services to perform the bulk of the planning and to use the pool of resources of the Southern electric system in times that the Company is short of reserves provides Gulf and its customers with many benefits.

In addition, Southern's Wholesale Energy section is beginning to secure firm energy at prices that are leading to significant savings to the Southern electric system. This will most assuredly continue well into the future.

## ENVIRONMENTAL CONCERNS

As mentioned before, Gulf is looking to power purchases to meet its generating capacity needs until it constructs the next generation addition. A recently completed evaluation of Gulf's available generation options has revealed that the most economical means to meet Gulf generation resource needs, is with the construction of a combined cycle unit. Currently this new generator is scheduled to be in service in the year 2002. This generator is also planned for an existing site, the Smith Electric Generating Plant, and as such would not be considered a virgin site that would need extensive environmental studies leading to obtaining construction and operating permits for this unit.

The next planned resource addition after the above mentioned unit is the repowering of Crist Units 1, 2, and 3 in 2007. Since the site is existing, it would not be considered a virgin site that would need extensive environmental studies leading to obtaining construction and operating permits for this new addition. It has been and will continue to be Gulf's intent to always comply with all environmental laws and regulations as they apply to the Company's operation.

Gulf Power's clean air compliance strategy serves as a road map for a least-cost compliance plan. This road map

establishes general direction but allows for individual decisions to be made based on specific information available at the time. This approach is an absolute necessity in maintaining the flexibility to match a dynamic environment with the variety of available compliance options.

Gulf Power completed its initial Clean Air Act Amendments (CAAA) strategy in December, 1990 and has produced updates or reviews in subsequent years following this initial strategy. Due to the relatively minor changes in assumptions since the last review and the lack of new information or developments on the regulatory front, this review serves as a confirmation of the general direction of Gulf Power Company's compliance strategy.

The focus of the strategy updates has, to date, centered around compliance with the acid rain requirements while considering other significant clean air requirements, and potential new requirements of the CAA. There is increasing uncertainty associated with future regulatory requirements which could significantly impact both the scope and cost of compliance over the next decade. However, there is insufficient information at this time to warrant incorporating these scenarios into a revised strategy. Gulf Power will continue its involvement in future clean air requirements. These requirements will be incorporated into future strategy updates as appropriate.

Phase I of Title IV of the CAAA became effective for SO<sub>2</sub> on January 1, 1995. Fuel procurement and equipment

installation efforts to support Gulf Power's Phase I fuel switching strategy are complete. Gulf Power has also completed installation of low-NOx burners on two large coal-fired units to support compliance with Title IV NOx requirements. In addition, Gulf Power brought 4 Phase II units into Phase I as 1995 substitution units. All of these units were affected for SO2 in 1995, and are affected for NOx during 1996 through 1999 and are grandfathered under the Phase I NOx limits during Phase II. These units were again substituted in 1996 making them affected for SO2 during the year.

With respect to Phase II sulfur dioxide compliance, Gulf Power will continue to pursue additional fuel switching coupled with the use of emission allowances banked during Phase I and the acquisition of additional allowances to meet compliance. This 1996 review discovered only minor differences in the fuel selection at several plants during Phase II. The updated strategy recommends that plant Scholz switch to 1.0% sulfur coal during Phase II. The previous strategy showed a Phase II switch to 1.5% sulfur coal.

In addition, potential future regulatory requirements, especially under ozone nonattainment or revised ambient standards, are aimed at further NOx and SO2 reductions. All of this uncertainty reinforces the need for a flexible, robust compliance plan. Accordingly, as decision dates for fuel and equipment purchases approach or as better information becomes available relative to regulatory and

economic drivers, the analysis will be updated to determine the most cost-effective decisions while maintaining future flexibility.

### **SMITH UNIT 3 ENVIRONMENTAL CONSIDERATIONS**

Subsequent to filing the Petition for Need Determination before the Commission, the Company will file its Site Certification Application (SCA) with the Florida Department of Environmental Protection under the Florida Electrical Power Plant Siting Act (PPSA). Smith Unit 3 will be operated in compliance with all applicable federal and state environmental laws and regulations. Two principal environmental issues to be considered are air emissions and any thermal impacts due to the discharge of cooling water from Smith Unit 3.

As mentioned above, Smith Unit 3 will be fueled by natural gas and therefore the only major air emission issue is that of NO<sub>x</sub>. Gulf is pursuing an air emission strategy that will reduce NO<sub>x</sub> emissions from one of the existing Smith generating units leading to a net reduction in total NO<sub>x</sub> emissions for the entire plant. However, in an abundance of conservatism, the cost estimate used in the self-build and RFP evaluations included the capital and O&M costs of a Selective Catalytic Reduction (SCR) system for Smith Unit 3 if needed to control NO<sub>x</sub> emissions beyond levels achieved through this strategy.

Condenser cooling for Smith Unit 3 will be accomplished by a closed-cycle cooling tower system, which will minimize cooling water withdrawals and discharge. Make-up water for the closed-cycle cooling system will be withdrawn from the existing once-through cooling water discharge canal that serves existing Smith Units 1 and 2. Blow-down from the cooling tower will be routed to the existing discharge canal, downstream of the make-up structure. The blow-down, which will be taken from the cold side of the cooling tower, will result in a slight decrease in the temperature of the cooling water of the discharge canal.

The Company believes that Smith Unit 3 will be permitted for construction and operation under the conditions and strategy that Gulf plans to propose in its SCA. From an environmental standpoint, the proposed facility will have net positive impacts.



## **AVAILABILITY OF SYSTEM INTERCHANGE**

Gulf Power Company coordinates its planning and operation with the other operating companies of the Southern electric System: Alabama Power Company, Georgia Power Company, Mississippi Power Company, and Savannah Electric Power Company. In any year an Individual operating company may have a temporary surplus or deficit in generating capacity, depending on the relationship of its planned generating capacity to its load and reserve responsibility. Each company buys or sells its temporary deficit or surplus capacity from or to the pool. This is done through the mechanism of an Intercompany Interchange Contract among the companies, that is reviewed and updated annually.

## **OFF-SYSTEM SALES**

Gulf Power Company, along with the other Southern electric operating companies; have negotiated the sales of capacity and energy to several utilities outside the Southern System. The term of the contracts started prior to 1999 and extends into 2010. Gulf's share of the capacity and energy sales is reflected in the reserves on Schedules 7.1 and 7.2 and the energy and fuel use on Schedules 5 and 6.1.

CHAPTER IV

FORECAST OF FACILITIES REQUIREMENTS

## **CAPACITY RESOURCE ALTERNATIVES**

### **POWER PURCHASES**

Gulf has entered into short-term purchased power arrangements that will meet its needs through the year 2001. Beyond that time, purchased power will be economically evaluated against internal construction and other opportunities to meet our customer needs in the least cost manner.

### **CAPACITY ADDITIONS**

As mentioned earlier, Gulf's needs through 2001 for additional supply-side resources will come from Southern system resources which will afford the Company a great deal of flexibility and less risk exposure. The flexibility of purchases allows the Company time to evaluate its various capacity options for the future without permanent investment until necessary. In fact, it was this flexibility that allowed Gulf to perform its analysis and make the significant change to its plans in 1998.

Gulf performed a number of economic evaluations of various potential supply options in order to determine the Company's most cost-effective means of meeting its 2002 capacity obligation. Prior to June 1998, the Company completed its evaluations that determined that construction of a combined cycle unit at its Lansing Smith Generating Plant was its best internal choice for meeting the 2002

needs. Prior to moving forward with the certification of this unit under the rules of the state's Power Plant Siting Act (PPSA), the Company issued a Request for Proposals (RFP) in order to solicit possible cost-effective alternatives to Gulf's own construction of this combined cycle unit. After performing the evaluations of the proposals, Gulf has decided to proceed with the necessary steps to pursue its most cost-effective alternative, which is its self-build option.

#### **FUTURE CONSIDERATIONS**

Gulf will continue to evaluate its options in order to determine how to best meet its capacity obligations beyond 2002. After the installation of Smith Unit 3, the Company plans to repower its existing Crist units 1, 2, and 3 by installing a "F" class combustion turbine (CT) and associated heat recovery steam generator (HRSG). This repowering is currently planned for 2007.

UTILITY: GULF POWER COMPANY

SCHEDULE 7.1

FORECAST OF CAPACITY, DEMAND, AND SCHEDULED MAINTENANCE AT TIME OF SUMMER PEAK (A)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8) (9)		(10)	(11) (12)	
YEAR	TOTAL INSTALLED CAPACITY MW	FIRM CAPACITY IMPORT MW (B)	FIRM CAPACITY EXPORT MW	NUG MW	TOTAL CAPACITY AVAILABLE MW	FIRM PEAK DEMAND MW	RESERVE MARGIN BEFORE MAINTENANCE		SCHEDULED MAINTENANCE MW	RESERVE MARGIN AFTER MAINTENANCE	
							MW	% OF PEAK		MW	% OF PEAK
1999	2284	232	(214)	19	2321	2175	146	6.7%	NONE	146	6.7%
2000	2284	177	(214)	19	2266	2207	59	2.7%		59	2.7%
2001	2284	177	(214)	19	2266	2234	32	1.4%		32	1.4%
2002	2824	34	(214)	19	2663	2265	398	17.6%		398	17.6%
2003	2824	34	(214)	19	2663	2280	383	16.8%		383	16.8%
2004	2824	34	(214)	19	2663	2309	354	15.3%		354	15.3%
2005	2824	34	(214)	0	2644	2347	297	12.7%		297	12.7%
2006	2824	34	(214)	0	2644	2383	261	11.0%		261	11.0%
2007	2972	30	(214)	0	2788	2425	363	15.0%		363	15.0%
2008	2972	26	(214)	0	2784	2466	318	12.9%		318	12.9%

NOTE: (A) CAPACITY ALLOCATIONS AND CHANGES MUST BE MADE BY JUNE 30 TO BE CONSIDERED IN EFFECT AT THE TIME OF THE SUMMER PEAK. ALL VALUES ARE SUMMER NET MW.

(B) INCLUDES FIRM PURCHASES AND ESTIMATED DEMAND SIDE OPTIONS.

UTILITY: GULF POWER COMPANY

SCHEDULE 7.2

FORECAST OF CAPACITY, DEMAND, AND SCHEDULED MAINTENANCE AT TIME OF WINTER PEAK (A)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
YEAR	TOTAL INSTALLED CAPACITY MW	FIRM CAPACITY IMPORT MW (B)	FIRM CAPACITY EXPORT MW	NUG MW	TOTAL CAPACITY AVAILABLE MW	FIRM PEAK DEMAND MW	RESERVE MARGIN BEFORE MAINTENANCE		SCHEDULED MAINTENANCE MW	RESERVE MARGIN AFTER MAINTENANCE	
							MW	% OF PEAK		MW	% OF PEAK
1998-99	2241	195	(214)	19	2241	2071	170	8.2%	NONE	170	8.2%
1999-00	2293	178	(214)	19	2276	2105	171	8.1%		171	8.1%
2000-01	2293	143	(214)	19	2241	2121	120	5.7%		120	5.7%
2001-02	2293	143	(214)	19	2241	2135	106	5.0%		106	5.0%
2002-03	2833	0	(214)	19	2638	2139	499	23.3%		499	23.3%
2003-04	2833	0	(214)	19	2638	2154	484	22.5%		484	22.5%
2004-05	2833	0	(214)	19	2638	2178	460	21.1%		460	21.1%
2005-06	2833	0	(214)	0	2619	2200	419	19.0%		419	19.0%
2006-07	2833	0	(214)	0	2619	2229	390	17.5%		390	17.5%
2007-08	2973	0	(214)	0	2759	2258	501	22.2%		501	22.2%

NOTE: (A) CAPACITY ALLOCATIONS AND CHANGES MUST BE MADE BY NOVEMBER 30 TO BE CONSIDERED IN EFFECT AT THE TIME OF WINTER PEAK. ALL VALUES ARE WINTER NET MW.

(B) INCLUDES FIRM PURCHASES.

UTILITY: GULF POWER COMPANY

SCHEDULE 8  
 PLANNED AND PROSPECTIVE GENERATING FACILITY ADDITIONS AND CHANGES

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
<u>Plant Name</u>	<u>Unit No.</u>	<u>Location</u>	<u>Unit Type</u>	<u>Fuel</u>		<u>Fuel Transport</u>		<u>Const Start Mo/Yr</u>	<u>Com'l In-Service Mo/Yr</u>	<u>Expected Retirement Mo/Yr</u>	<u>Gen Max Nameplate KW</u>	<u>Net Capability</u>		<u>Status</u>
				<u>Pri</u>	<u>Alt</u>	<u>Pri</u>	<u>Alt</u>					<u>Summer MW</u>	<u>Winter MW</u>	
Lansing Smith	3	Bay County 36/2S/15W	CC	NG	--	PL	--	11/00	06/02			540.0	540.0	L
Lansing Smith	A	Bay County 36/2S/15W	CT	LO	--	TK	--	--	--	12/06	41,850	(31.6)	(40.0)	R
Crist	1-3	Escambia County 25/1N/30W	CC	NG	--	PL	--	03/06	06/07			180.0	(a) 180.0	(a) RP

Note: (a) Incremental increase in capability. Total capability is 263 MW.

Abbreviations: CT - Combustion Turbine  
 CC - Combined Cycle  
  
 NG - Natural Gas  
 LO - Light Oil  
  
 PL - Pipeline  
 TK - Truck

P - Planned, but not authorized by utility  
 R - To be retired  
 L - Regulatory approval pending. Not under construction  
 RP - Proposed for repowering

Schedule 9  
 Status Report and Specifications of Proposed Generating Facilities

- |      |   |                                       |
|------|---|---------------------------------------|
| (1)  | Plant Name and Unit Number:                   | Lansing Smith Unit 3                  |
| (2)  | Capacity                                      |                                       |
|      | a. Summer:                                    | 540 MW                                |
|      | b. Winter:                                    | 540 MW                                |
| (3)  | Technology Type:                              | Combined Cycle                        |
| (4)  | Anticipated Construction Timing               |                                       |
|      | a. Field construction start - date:           | 11/00                                 |
|      | b. Commercial in-service date:                | 06/02                                 |
| (5)  | Fuel  |                                       |
|      | a. Primary fuel:                              | Natural Gas                           |
|      | b. Alternate fuel:                            | None                                  |
| (6)  | Air Pollution Control Strategy:               | Dry low NOx combustor                 |
| (7)  | Cooling Method:                               | Cooling Tower                         |
| (8)  | Total Site Area:                              | 1340 acres (total plant site)         |
| (9)  | Construction Status:                          | This facility is authorized           |
| (10) | Certification Status:                         | Applied                               |
| (11) | Status with Federal Agencies:                 | Not applied                           |
| (12) | Projected Unit Performance Data               |                                       |
|      | Planned Outage Factor (POF):                  | 3.8%                                  |
|      | Forced Outage Factor (FOF):                   | 3.4%                                  |
|      | Equivalent Availability Factor (EAF):         | 92.0%                                 |
|      | Resulting Capacity Factor (%):                | 62.0%                                 |
|      | Average Net Operating Heat Rate (ANOHR):      | 6,741 For 521 MW - average @ 69 deg F |
|      |   | 7,139 For 540 MW - peaking @ 95 deg F |
| (13) | Projected Unit Financial Data                 |                                       |
|      | Book Life (Years):                            | 40                                    |
|      | Total Installed Cost (In-Service Year \$/kW): | 392                                   |
|      | Direct Construction Cost ('98 \$/kW):         | 316                                   |
|      | AFUDC Amount (\$/kW):                         | 45                                    |
|      | Escalation (\$/kW):                           | 31                                    |
|      | Fixed O&M (\$/kW - Yr):                       | 3.18                                  |
|      | Variable O&M (\$/MWH):                        | 2.12                                  |
|      | K Factor:                                     | 1.5751                                |



Schedule 9  
 Status Report and Specifications of Proposed Generating Facilities

(1)	Plant Name and Unit Number:	Crist 1-3 (repower)
(2)	Capacity	
	a. Summer:	180 MW (263 MW total)
	b. Winter:	180 MW (263 MW total)
(3)	Technology Type:	Combined Cycle
(4)	Anticipated Construction Timing	
	a. Field construction start - date:	03/06
	b. Commercial in-service date:	06/07
(5)	Fuel	
	a. Primary fuel:	Natural Gas
	b. Alternate fuel:	None
(6)	Air Pollution Control Strategy:	Dry low NOx combustor
(7)	Cooling Method:	Cooling tower
(8)	Total Site Area:	680 acres (total plant site)
(9)	Construction Status:	This facility is planned but not authorized
(10)	Certification Status:	Not applied
(11)	Status with Federal Agencies:	Not applied
(12)	Projected Unit Performance Data	
	Planned Outage Factor (POF):	3.8%
	Forced Outage Factor (FOF):	2.6%
	Equivalent Availability Factor (EAF):	93.5%
	Resulting Capacity Factor (%):	42%
	Average Net Operating Heat Rate (ANOHR):	7,693
(13)	Projected Unit Financial Data	
	Book Life (Years):	40
	Total Installed Cost (In-Service Year \$/kW):	820
	Direct Construction Cost ('98 \$/kW):	562
	AFUDC Amount (\$/kW):	113
	Escalation (\$/kW):	145
	Fixed O&M (\$/kW - Yr):	5.40
	Variable O&M (\$/MWH):	2.79
	K Factor:	1.5751

Utility: Gulf Power Company

Schedule 10

Status Report and Specifications of Proposed Directly Associated Transmission Lines

(1) Point of Origin and Termination:	Lansing Smith Unit 3 - Smith 230 kV bus
(2) Number of Lines:	1
(3) Right-of-Way:	None
(4) Line Length:	1,000 feet
(5) Voltage:	230 kV
(6) Anticipated Construction Timing:	6 months
(7) Anticipated Capital Investment:	\$2,300,000
(8) Substations:	1
(9) Participation with Other Utilities:	N/A