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March 28, 2002

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

Dear Ms. Bayo:

Enclosed are an original and twenty-five copies of Gulf Power Company's 2002 Ten Year Site Plan, and it 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 it is filed pursuant to Order No. PSC-93-1376-FOF-EI.

Sincerely,

*Susan D. Ritenour (lw)*

Susan D. Ritenour  
Assistant Secretary and Assistant Treasurer

lw

AUS \_\_\_\_\_ Enclosures  
CAF \_\_\_\_\_  
CMP \_\_\_\_\_  
COM \_\_\_\_\_  
CTR \_\_\_\_\_

cc: Beggs and Lane  
Jeffrey A. Stone, Esquire

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*Done 4/02/02*

DOCUMENT NUMBER - DATE

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FPSC-COMMISSION CLERK

# **TEN YEAR SITE PLAN 2002-2011**

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

**APRIL 2002**



DOCUMENT NUMBER-DATE

03588 MAR 29 8

FP30-COMMISSION CLERK



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**GULF POWER COMPANY  
TEN YEAR SITE PLAN**

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

**Submitted To The  
State of Florida  
Public Service Commission**

**APRIL 1, 2002**

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**GULF POWER COMPANY**

**TEN-YEAR SITE PLAN**

**Executive Summary**

The Gulf Power Company 2002 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 2002 Ten-Year Site Plan for Gulf Power Company is being filed in compliance with the Commission's rules.

The 2002 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. Gulf participates in the Southern electric system IRP process along with the other Southern operating 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 set forth within the Southern IRP 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 Southern 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 existing power purchases and reliance on Southern system resources, exclusively, prior to the summer of 2002. In June 2002, a new 574 MW natural gas-fired combined cycle generating unit at Gulf's existing Lansing Smith Generating Plant will begin commercial operation. This unit will be designated as Smith Unit 3. Smith Unit 3, pursuant to the Florida Electrical Power Plant Siting Act (PPSA), Chapter 403, Part II, Florida Statutes, was the subject of a petition to the FPSC for a determination of need under Section 403.519, Florida Statutes. The need for Smith Unit 3 was approved by the FPSC in Order No. PSC-99-1478-FOF-EI dated August 2, 1999. The location of the new 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.

The Company currently plans to meet its future capacity needs after the installation of Smith Unit 3 by installing a 157 MW CT at Smith Plant. This addition is tabulated in further detail on Schedule 8 of this document.

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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 (Plants Crist, Smith, and Scholz). Gulf also owns a 50% undivided ownership interest in Unit 1 and Unit 2 at Mississippi Power Company's Daniel Electric Generating Facility, and has a 25% ownership in Unit 3 at Georgia Power Company's Scherer Electric Generating Facility. This fleet of generating units consists of fourteen fossil steam units and one combustion turbine. Schedule 1 shows 1,020 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 351 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 new combustion turbines associated with an existing customer's cogeneration facility, adding another 12 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 2,251 MW and a total net winter generating capability of 2,262 MW. In addition to the Company's installed generating resources, Gulf has a contract with Solutia Corporation (sucessor to

Monsanto) 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, 2001

(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 Retrmnt 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>1,020.0</u>	<u>1,020.0</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	1	7/59	12/14	93,750	78.0	78.0
	5		FS	C	NG	WA	PL	1	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	477.0	477.0
Lansing Smith		Bay County 36/2S/15W									<u>381,850</u>	<u>383.0</u>	<u>391.0</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	189.0	189.0
	A		CT	LO	--	TK	--	--	5/71	12/06	41,850	32.0	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>525.0</u>	<u>525.0</u>
	1		FS	C	HO	RR	TK	--	9/77	12/22	274,125	261.0	261.0
	2		FS	C	HO	RR	TK	--	6/81	12/26	274,125	264.0	264.0
(A) Scherer	3	Monroe County, GA	FS	C	--	RR	--	--	1/87	12/42	222,750	218.8	218.8
Pea Ridge		Santa Rosa County 15/1N/29W									<u>14,250</u>	<u>12.0</u>	<u>15.0</u>
	1		CT	NG	--	PL	--	--	5/98	UNK	4,750	4.0	5.0
	2		CT	NG	--	PL	--	--	5/98	UNK	4,750	4.0	5.0
	3		CT	NG	--	PL	--	--	5/98	UNK	4,750	4.0	5.0
Total System											<u>2,250.8</u>	<u>2,261.8</u>	



Abbreviations:

Fuel

---

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

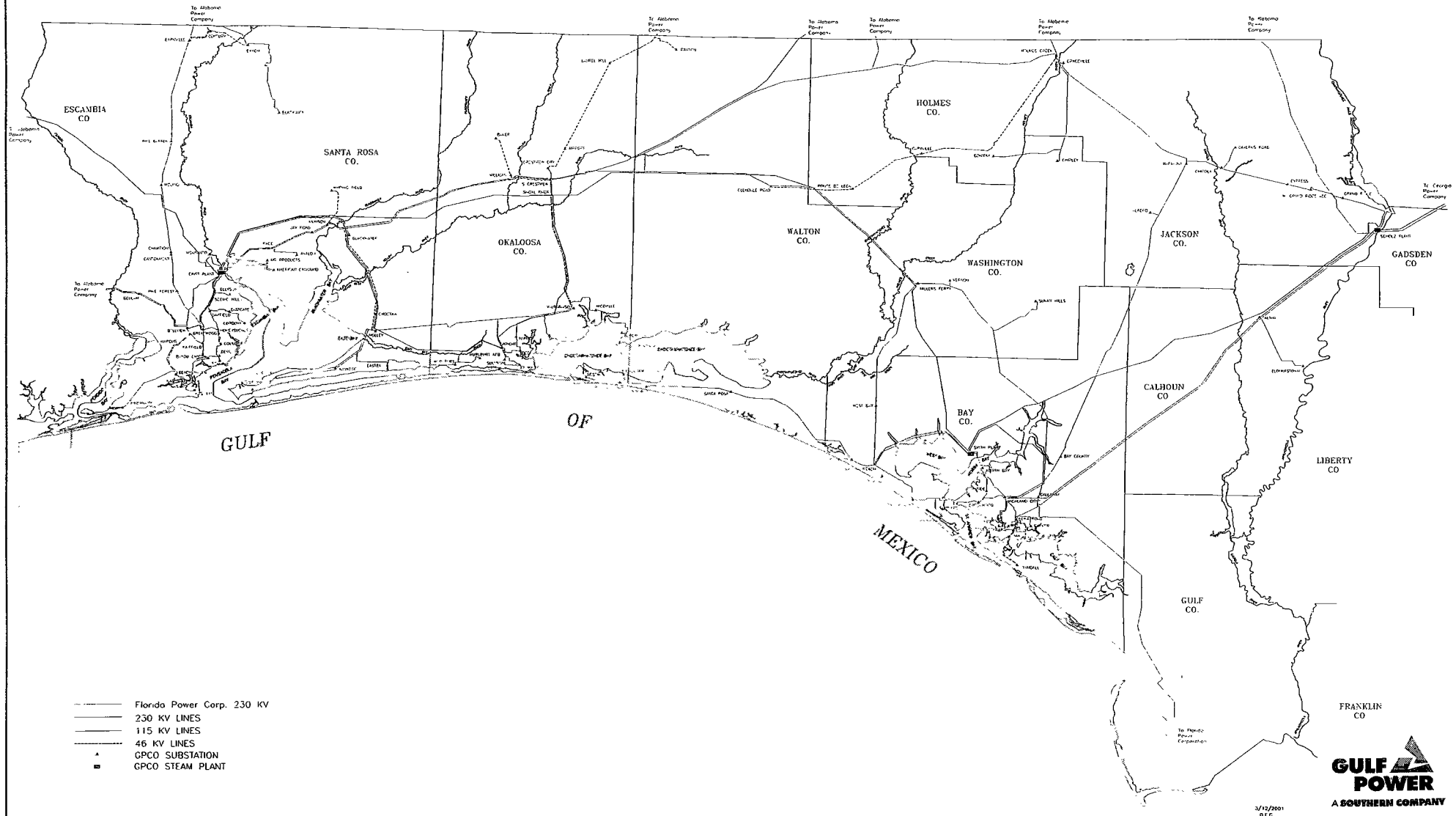
Fuel Transportation

---

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%).

# 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



3/12/2001  
D.L.C.

## CHAPTER II

### FORECAST OF ELECTRIC POWER DEMAND AND ENERGY CONSUMPTION

**FORECASTING DOCUMENTATION**

**GULF POWER COMPANY**  
**LOAD FORECASTING METHODOLOGY**  
**OVERVIEW**

Gulf Power Company views the forecasting effort as a dynamic process requiring ongoing efforts to yield results which allow informed planning and decision-making. The total forecast is an integration 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, which are predicated on the philosophy of knowing and understanding the needs, perceptions and motivations of our customers and actively promoting wise and efficient uses of energy which satisfy customer needs. 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 our 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.

The Marketing Services section of the Marketing and Load Management Department is responsible for preparing forecasts of customers, energy and peak demand. A description of the assumptions and methods used in the development of these forecasts follows.

## **I. ASSUMPTIONS**

### **A. ECONOMIC OUTLOOK**

Gulf's projections assume the growth in the U. S. economy (Real Gross Domestic Product, GDP) will slow to near 2.9% in 2002 from its 2000 growth of 4.4%. The Federal Reserve is expected to maintain its policy of encouraging economic growth while maintaining control of inflation. This environment of moderate growth (2001-2.4%, 2002-2.9%, 2003-2.9%) will result in inflation of about 2.5% for 2001, decreasing to about 2.3% by 2003.

### **B. TERRITORIAL ECONOMIC OUTLOOK**

Gulf's projections reflect the economic outlook for our service area as provided by Economy.com, a renowned economic service provider. Gulf's forecast assumes that service area population growth will continue to exceed the nation's growth and closely track the rate of growth for the state of Florida. Gulf's projections incorporate electric price assumptions derived from the 2001 Gulf Power Official long-range Forecast and include estimated capital costs associated with the May, 2002 Lansing Smith Unit 3 capacity addition. Fuel price projections were provided by Southern Company Fuel Services. The following tables provide a summary of the assumptions associated with Gulf's forecast:

**TABLE 1**  
**ECONOMIC SUMMARY**  
**(2001-2006)**

	<u>Base Case Forecast</u>
GDP Growth	2.4% - 2.5%
Real Interest Rate	7.2% - 6.2%
Inflation	2.5% - 2.3%

**TABLE 2**  
**AREA DEMOGRAPHIC SUMMARY**  
**(2001-2006)**

	<u>Base Case Forecast</u>
Population Gain	76,592
Net Migration	53,520
Average Annual Population Growth	1.7%
Average Annual Labor Force Growth	1.9%

## **II. CUSTOMER FORECAST**

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

The immediate short-term forecast (0-2 years) of customers is based primarily on projections prepared by district personnel. Our district personnel 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 (3-25 years), the Gulf Economic Model, a competition-based econometric model developed by Economy.com, is used in the development of residential customer projections. Projections of births, deaths, and population by age groups are determined by past and projected trends. Migration is determined by economic growth relative to surrounding areas.

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



the eight counties in which Gulf provides service by the percentage of customers in these eight counties for which Gulf currently provides service.

The number of households referred to above is computed by applying a household formation trend to the previously mentioned 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.

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

The immediate short-term forecast (0-2 years) of commercial customers, as in the residential sector, is prepared by the district personnel in similar fashion 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, reflecting the growth of commercial services to meet the needs of new residents. Implicit in the commercial customer forecast is the relationship between growth in total real disposable income and growth in the commercial sector.

### **III. ENERGY SALES FORECAST**

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

The short-term (0-2 year) 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 residential sales forecast reflects the continued impacts of Gulf Power's GoodCents Home program and efficiency improvements undertaken by customers as a result of the GoodCents Energy Survey program, as well as conversions to higher efficient outdoor lighting. The residential sales forecast also reflects the anticipated incremental impacts of Gulf's DSM plan, approved in April, 2000, designed to meet the

Commission-approved demand and energy reduction goals established in October, 1999. 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 year) 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.

DRI McGraw Hill's annual building data 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                  | 7. Elementary/Secondary Schools |
| 2. Offices                      | 8. Colleges/Trade Schools       |
| 3. Retail and Personal Services | 9. Hospitals/Health Services    |
| 4. Public Utilities             | 10. Hotels/Motels               |
| 5. Automotive Services          | 11. Religious Organizations     |
| 6. Restaurants                  | 12. Miscellaneous               |

The commercial sales forecast 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 efficient outdoor lighting. The commercial sales forecast also reflects the anticipated incremental

impacts of Gulf's DSM plan, approved in April, 2000, designed to meet the Commission-approved demand and energy reduction goals established in October, 1999. 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. Fifty-one of Gulf's largest industrial customers are interviewed to identify load changes due to equipment addition, replacement 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 a combination of trending techniques and 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, and a supplemental energy rate. The industrial sales forecast also reflects the anticipated incremental impacts of Gulf's DSM plan, approved in April, 2000, designed to meet the Commission-approved demand and energy reduction goals established in October, 1999.

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:

<u>HIGH PRESSURE SODIUM</u>	<u>MERCURY VAPOR</u>
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 are 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 forecast of energy sales to wholesale customers is developed utilizing multiple regression analyses. Monthly energy purchases per day for each of Gulf's wholesale customers are estimated based upon recent



historical data and expected normal weather. The model output is then multiplied by the projected number of days by month to expand to the customer totals, which are then summed to develop the class totals.

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

**F. COMPANY USE & INTERDEPARTMENTAL ENERGY**

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

#### **IV. PEAK DEMAND FORECAST**

The short-term (0-2 years) peak demand forecast is prepared using average historical monthly territorial load factors and projected monthly territorial supply.

The summer peak month demand projections are based upon the average of the historical summer peak month territorial load factors for the period from 1980 through the summer peak of 2000, excluding the extreme high load factor and extreme low load factor experienced during that period. Gulf's summer peak demand typically occurs in the month of July.

Similarly, the winter peak month demand projections are based upon the average of the historical winter peak month territorial load factors for the period from 1980 through the winter peak of 2000/2001, excluding the extreme high load factor and extreme low load factor experienced during that period. Gulf's winter peak demand typically occurs in the month of January.

The remaining monthly demand projections are developed in similar fashion utilizing the respective historical average monthly load factors, excluding the monthly extreme high and extreme low load factors.

The long-term 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 structural detail of HELM 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  $i$ .

## V. DATA SOURCES

Gulf utilizes Company historical customer, energy and revenue data by rate and class, and historical hourly load data coupled with weather information from WDAS and NOAA to drive the energy and demand models. Individual customer historical data is utilized in developing the projections for Gulf's largest Commercial and Industrial customers.

Gulf's models also utilize economic projections provided by Economy.com, a renowned economic services provider. Economy.com utilizes the Bureau of Labor Statistics for data on employment, unemployment rate and labor force. Personal Income data is obtained from the Bureau of Economic Analysis. Population and Population by Age Cohort, Households and Housing Permit information is obtained from the U.S. Bureau of Census.

## **VI. CONSERVATION PROGRAMS**

As previously mentioned, Gulf's forecast of energy sales and peak demand reflect the continued impacts of our conservation programs. The following provides a listing 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. These reductions also reflect the anticipated impacts of the new programs submitted in Gulf's Demand Side Management plan filed December 29, 1999 (Docket No. 991790-EG) as approved by the FPSC on April 17, 2000. These programs were designed to meet the incremental impacts of the Commission-approved demand and energy reduction DSM goals established in Order No. PSC-99-1942-FOF-EG on October 1, 1999.

### **A. RESIDENTIAL CONSERVATION**

In the residential sector, Gulf's GoodCents Home/Energy Star 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. This program also provides the opportunity to offer the Energy Star Home Program to Gulf's builders and customers and correlates the performance of GoodCents Homes to the nationally recognized Energy Star

efficiency label. In many cases, a standard GoodCents Home will also qualify as an Energy Star home.

Further conservation benefits are achieved in the existing home market with Gulf's GoodCents Energy Survey 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 by providing specific whole house recommendations and a list of qualified companies who provide installation services. The benefits of this program are also made available to our customers through the GoodCents Mail-In Energy Survey program as well as a recently added on-line version.

*In Concert With The Environment*® is an environmental and energy awareness program that was 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 our 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. Although Gulf ceased actively pursuing

implementation of this program in 1998, it is still available upon request for presentation in the schools within our service area.

The Duct Leakage Repair Program provides Gulf Power Company's residential customers a means to identify house air duct leakage and recommend repairs that can reduce customer energy usage and kW demand. Potential program participants are identified through the Residential Energy Audit Program as well as through educational and promotional activities. After identification of the leakage sites and quantities, the customer is given a written summary of the test findings and the potential for savings, along with a list of approved repair contractors. The program also provides duct leakage testing on new construction duct systems to ensure maximum efficiency and comfort in these new homes. This testing is available to the Builder, HVAC contractor, or homeowner. This program builds upon the Residential Energy Audit process by revealing additional energy efficiency and comfort measures available to the customer. Although Gulf discontinued actively promoting this program in 1998, it is still available upon request.

The GoodCents Environmental Home Program provides Gulf Power Company's residential customers with guidance concerning energy and environmental efficiency in new construction. The program promotes energy-efficient and environmentally sensitive home construction techniques by evaluating over 500 components in six categories of design and construction practices. The GoodCents Environmental Home consists of energy and environmental components. The energy components evaluate the building envelope and mechanical systems of the home with respect



to energy efficiency. The environmental components of the program include measures which also evaluate thermal energy loss, alternative energy sources, embodied energy and design strategies that affect energy usage in the home.

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 GoodCents Select Program, an 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 GoodCents Select 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 GoodCents Select 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 GoodCents Select 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 GoodCents Select 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 Tier I and Tier II Commercial Energy Analysis Programs and the 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 Tier I program is a direct mail energy audit program that provides customers with recommendations that, if implemented, would move the customer beyond the efficiency level typically found in the marketplace. The Tier II program is an interactive program that consists of an on-site review by a Gulf Power Company Commercial Energy Consultant of the customer's facility operation, equipment and energy usage pattern. The customer is provided with energy management strategies that enhance their overall business operation, and customer specific recommendations, including

introduction to new technologies, for improving profitability by lowering energy cost.

The Technical Assistance Audit Program is designed with enough flexibility to allow a detailed economic evaluation of potential energy improvements through a more in-depth process which includes equipment energy usage monitoring, computer energy modeling, life cycle equipment cost analysis, and feasibility studies.

Gulf's Real Time Pricing (RTP) program is designed to take advantage of customer price response to achieve peak demand reductions. Customer participation is voluntary. Due to the nature of the pricing arrangement included in this program, there are some practical limitations to customers' 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.

Gulf also has an Interruptible Service program which provides the Company with a contracted and callable resource. Participating customers are notified in advance for the need to curtail consumption. Under preset terms and conditions, the customer must reduce demand and energy for the designated period or risk assessment of monetary penalties for noncompliance.

Gulf's Energy Services Program is designed to offer advanced energy services and energy efficient end-use equipment to meet the individual needs of large customers. These energy services include comprehensive audits, design, construction and financing of demand

reduction or efficiency improvement energy conservation projects.

**C. STREET LIGHTING CONVERSION**

Gulf's Street Lighting program is designed to achieve additional conservation benefits by conversion of existing less efficient mercury vapor street and roadway lighting to higher efficient high pressure sodium lighting.

**D. CONSERVATION RESULTS SUMMARY**

The following tables provide direct estimates of the energy savings (reductions in peak demand and net energy for load) realized by Gulf's conservation programs. These reductions are verified through on-going monitoring in place on Gulf's major conservation programs and reflect estimates of conservation undertaken by customers as a result of Gulf Power Company's involvement. The conservation 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 our demand and energy forecasts.

**HISTORICAL  
TOTAL CONSERVATION PROGRAMS  
CUMULATIVE ANNUAL REDUCTIONS  
AT GENERATOR**

	<b>SUMMER PEAK (KW)</b>	<b>WINTER PEAK (KW)</b>	<b>NET ENERGY FOR LOAD (KWH)</b>
2000	269,484	313,750	585,922,410

**2002 BUDGET FORECAST  
TOTAL CONSERVATION PROGRAMS  
INCREMENTAL ANNUAL REDUCTIONS  
AT GENERATOR**

	<b>SUMMER PEAK (KW)</b>	<b>WINTER PEAK (KW)</b>	<b>NET ENERGY FOR LOAD (KWH)</b>
2001	18,470	19,786	26,950,048
2002	15,954	18,452	27,035,221
2003	15,886	18,237	26,917,832
2004	17,899	20,594	28,095,699
2005	18,067	20,846	28,329,807
2006	18,034	20,829	28,284,212
2007	18,101	20,906	28,613,453
2008	18,065	20,885	28,641,856
2009	18,057	20,913	28,710,941
2010	18,079	20,947	28,740,474
2011	8,364	9,575	21,832,307

**2002 BUDGET FORECAST  
TOTAL CONSERVATION PROGRAMS  
CUMULATIVE ANNUAL REDUCTIONS  
AT GENERATOR**

	<b>SUMMER PEAK (KW)</b>	<b>WINTER PEAK (KW)</b>	<b>NET ENERGY FOR LOAD (KWH)</b>
2001	287,954	333,536	612,872,458
2002	303,908	351,988	639,907,679
2003	319,794	370,225	666,825,511
2004	337,693	390,819	694,921,210
2005	355,760	411,665	723,251,017
2006	373,794	432,494	751,535,229
2007	391,895	453,400	780,148,682
2008	409,960	474,285	808,790,538
2009	428,017	495,198	837,501,479
2010	446,096	516,145	866,241,953
2011	454,460	525,720	888,074,260

**HISTORICAL  
TOTAL RESIDENTIAL CONSERVATION PROGRAMS  
CUMULATIVE ANNUAL REDUCTIONS  
AT GENERATOR**

	<b>SUMMER PEAK (KW)</b>	<b>WINTER PEAK (KW)</b>	<b>NET ENERGY FOR LOAD (KWH)</b>
2000	127,667	188,208	294,322,893

**2002 BUDGET FORECAST  
TOTAL RESIDENTIAL CONSERVATION PROGRAMS  
INCREMENTAL ANNUAL REDUCTIONS  
AT GENERATOR**

	<b>SUMMER PEAK (KW)</b>	<b>WINTER PEAK (KW)</b>	<b>NET ENERGY FOR LOAD (KWH)</b>
2001	13,194	16,924	11,639,081
2002	13,268	16,961	11,674,935
2003	13,199	16,747	11,496,414
2004	15,368	19,258	13,052,753
2005	15,587	19,562	13,317,469
2006	15,607	19,597	13,348,485
2007	15,621	19,622	13,370,497
2008	15,638	19,654	13,397,512
2009	15,681	19,732	13,463,547
2010	15,703	19,767	13,494,563
2011	5,988	8,396	6,586,398

**2002 BUDGET FORECAST  
TOTAL RESIDENTIAL CONSERVATION PROGRAMS  
CUMULATIVE ANNUAL REDUCTIONS  
AT GENERATOR**

	<b>SUMMER PEAK (KW)</b>	<b>WINTER PEAK (KW)</b>	<b>NET ENERGY FOR LOAD (KWH)</b>
2001	140,861	205,132	305,961,974
2002	154,129	222,093	317,636,909
2003	167,328	238,840	329,133,323
2004	182,696	258,098	342,186,076
2005	198,283	277,660	355,503,545
2006	213,890	297,257	368,852,030
2007	229,511	316,879	382,222,527
2008	245,149	336,533	395,620,039
2009	260,830	356,265	409,083,586
2010	276,533	376,032	422,578,149
2011	282,521	384,428	429,164,547

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

	SUMMER PEAK (KW)	WINTER PEAK (KW)	NET ENERGY FOR LOAD (KWH)
2000	141,817	125,542	280,201,145

2002 BUDGET FORECAST  
TOTAL COMMERCIAL/INDUSTRIAL DSM PROGRAMS  
INCREMENTAL ANNUAL REDUCTIONS  
AT GENERATOR

	SUMMER PEAK (KW)	WINTER PEAK (KW)	NET ENERGY FOR LOAD (KWH)
2001	5,276	2,862	15,009,579
2002	2,686	1,491	15,142,698
2003	2,687	1,490	15,279,809
2004	2,531	1,336	14,945,590
2005	2,480	1,284	14,932,571
2006	2,427	1,232	14,923,914
2007	2,480	1,284	15,236,714
2008	2,427	1,231	15,237,184
2009	2,376	1,181	15,242,419
2010	2,376	1,180	15,242,421
2011	2,376	1,179	15,242,420

2002 BUDGET FORECAST  
TOTAL COMMERCIAL/INDUSTRIAL DSM PROGRAMS  
CUMULATIVE ANNUAL REDUCTIONS  
AT GENERATOR

	SUMMER PEAK (KW)	WINTER PEAK (KW)	NET ENERGY FOR LOAD (KWH)
2001	147,093	128,404	295,210,724
2002	149,779	129,895	310,353,422
2003	152,466	131,385	325,633,231
2004	154,997	132,721	340,578,821
2005	157,477	134,005	355,511,392
2006	159,904	135,237	370,435,306
2007	162,384	136,521	385,672,020
2008	164,811	137,752	400,909,204
2009	167,187	138,933	416,151,623
2010	169,563	140,113	431,394,044
2011	171,939	141,292	446,636,464



HISTORICAL  
TOTAL OTHER DSM PROGRAMS  
CUMULATIVE ANNUAL REDUCTIONS  
AT GENERATOR

	SUMMER PEAK (KW)	WINTER PEAK (KW)	NET ENERGY FOR LOAD (KWH)
2000	0	0	11,398,372

2002 BUDGET FORECAST  
TOTAL OTHER DSM PROGRAMS  
INCREMENTAL ANNUAL REDUCTIONS  
AT GENERATOR

	SUMMER PEAK (KW)	WINTER PEAK (KW)	NET ENERGY FOR LOAD (KWH)
2001	0	0	301,388
2002	0	0	217,588
2003	0	0	141,608
2004	0	0	97,356
2005	0	0	79,767
2006	0	0	11,813
2007	0	0	6,242
2008	0	0	7,160
2009	0	0	4,976
2010	0	0	3,489
2011	0	0	3,489

2002 BUDGET FORECAST  
TOTAL OTHER DSM PROGRAMS  
CUMULATIVE ANNUAL REDUCTIONS  
AT GENERATOR

	SUMMER PEAK (KW)	WINTER PEAK (KW)	NET ENERGY FOR LOAD (KWH)
2001	0	0	11,699,760
2002	0	0	11,917,348
2003	0	0	12,058,957
2004	0	0	12,156,313
2005	0	0	12,236,080
2006	0	0	12,247,893
2007	0	0	12,254,135
2008	0	0	12,261,295
2009	0	0	12,266,270
2010	0	0	12,269,760
2011	0	0	12,273,249

HISTORICAL  
TOTAL EXISTING DSM PROGRAMS  
CUMULATIVE ANNUAL REDUCTIONS  
AT GENERATOR

	SUMMER PEAK (KW)	WINTER PEAK (KW)	NET ENERGY FOR LOAD (KWH)
2000	220,753	264,564	529,528,115

2002 BUDGET FORECAST  
TOTAL EXISTING DSM PROGRAMS  
INCREMENTAL ANNUAL REDUCTIONS  
AT GENERATOR

	SUMMER PEAK (KW)	WINTER PEAK (KW)	NET ENERGY FOR LOAD (KWH)
2001	1,858	2,880	3,585,333
2002	1,740	2,667	3,318,436
2003	1,484	2,206	2,847,245
2004	1,419	2,089	2,701,939
2005	1,450	2,145	2,732,376
2006	1,470	2,181	2,695,438
2007	1,484	2,206	2,711,879
2008	1,502	2,238	2,739,811
2009	1,544	2,315	2,803,663
2010	1,564	2,351	2,833,192
2011	1,485	2,208	2,710,127

2002 BUDGET FORECAST  
TOTAL EXISTING DSM PROGRAMS  
CUMULATIVE ANNUAL REDUCTIONS  
AT GENERATOR

	SUMMER PEAK (KW)	WINTER PEAK (KW)	NET ENERGY FOR LOAD (KWH)
2001	222,611	267,444	533,113,447
2002	224,351	270,110	536,431,883
2003	225,835	272,317	539,279,129
2004	227,254	274,405	541,981,068
2005	228,704	276,550	544,713,443
2006	230,174	278,731	547,408,881
2007	231,658	280,937	550,120,760
2008	233,159	283,175	552,860,572
2009	234,703	285,490	555,664,232
2010	236,268	287,841	558,497,425
2011	237,753	290,048	561,207,552

**HISTORICAL  
RESIDENTIAL EXISTING DSM PROGRAMS  
CUMULATIVE ANNUAL REDUCTIONS  
AT GENERATOR**

	<b>SUMMER PEAK (KW)</b>	<b>WINTER PEAK (KW)</b>	<b>NET ENERGY FOR LOAD (KWH)</b>
2000	110,832	161,994	280,343,724

**2002 BUDGET FORECAST  
RESIDENTIAL EXISTING DSM PROGRAMS  
INCREMENTAL ANNUAL REDUCTIONS  
AT GENERATOR**

	<b>SUMMER PEAK (KW)</b>	<b>WINTER PEAK (KW)</b>	<b>NET ENERGY FOR LOAD (KWH)</b>
2001	1,599	2,621	2,491,542
2002	1,481	2,408	2,308,445
2003	1,225	1,947	1,913,234
2004	1,160	1,830	1,812,180
2005	1,191	1,886	1,860,206
2006	1,211	1,922	1,891,222
2007	1,225	1,947	1,913,234
2008	1,243	1,979	1,940,248
2009	1,285	2,056	2,006,284
2010	1,305	2,092	2,037,300
2011	1,226	1,949	1,914,235

**2002 BUDGET FORECAST  
RESIDENTIAL EXISTING DSM PROGRAMS  
CUMULATIVE ANNUAL REDUCTIONS  
AT GENERATOR**

	<b>SUMMER PEAK (KW)</b>	<b>WINTER PEAK (KW)</b>	<b>NET ENERGY FOR LOAD (KWH)</b>
2001	112,431	164,615	282,835,266
2002	113,912	167,022	285,143,711
2003	115,137	168,970	287,056,945
2004	116,297	170,799	288,869,125
2005	117,488	172,685	290,729,331
2006	118,699	174,607	292,620,553
2007	119,924	176,554	294,533,787
2008	121,166	178,533	296,474,036
2009	122,451	180,589	298,480,319
2010	123,757	182,681	300,517,619
2011	124,983	184,629	302,431,854

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

	SUMMER PEAK (KW)	WINTER PEAK (KW)	NET ENERGY FOR LOAD (KWH)
2000	109,921	102,570	237,786,019

2002 BUDGET FORECAST  
COMMERCIAL/INDUSTRIAL EXISTING DSM PROGRAMS  
INCREMENTAL ANNUAL REDUCTIONS  
AT GENERATOR

	SUMMER PEAK (KW)	WINTER PEAK (KW)	NET ENERGY FOR LOAD (KWH)
2001	259	259	792,403
2002	259	259	792,403
2003	259	259	792,403
2004	259	259	792,403
2005	259	259	792,403
2006	259	259	792,403
2007	259	259	792,403
2008	259	259	792,403
2009	259	259	792,403
2010	259	259	792,403
2011	259	259	792,403

2002 BUDGET FORECAST  
COMMERCIAL/INDUSTRIAL EXISTING DSM PROGRAMS  
CUMULATIVE ANNUAL REDUCTIONS  
AT GENERATOR

	SUMMER PEAK (KW)	WINTER PEAK (KW)	NET ENERGY FOR LOAD (KWH)
2001	110,180	102,829	238,578,421
2002	110,439	103,088	239,370,824
2003	110,698	103,347	240,163,227
2004	110,957	103,606	240,955,630
2005	111,216	103,865	241,748,032
2006	111,475	104,124	242,540,435
2007	111,734	104,383	243,332,838
2008	111,993	104,642	244,125,241
2009	112,252	104,901	244,917,643
2010	112,511	105,160	245,710,046
2011	112,770	105,419	246,502,449

HISTORICAL  
OTHER EXISTING DSM PROGRAMS  
CUMULATIVE ANNUAL REDUCTIONS  
AT GENERATOR

	SUMMER PEAK (KW)	WINTER PEAK (KW)	NET ENERGY FOR LOAD (KWH)
2000	0	0	11,398,372

2002 BUDGET FORECAST  
OTHER EXISTING DSM PROGRAMS  
INCREMENTAL ANNUAL REDUCTIONS  
AT GENERATOR

	SUMMER PEAK (KW)	WINTER PEAK (KW)	NET ENERGY FOR LOAD (KWH)
2001	0	0	301,388
2002	0	0	217,588
2003	0	0	141,608
2004	0	0	97,356
2005	0	0	79,767
2006	0	0	11,813
2007	0	0	6,242
2008	0	0	7,160
2009	0	0	4,976
2010	0	0	3,489
2011	0	0	3,489

2002 BUDGET FORECAST  
OTHER EXISTING DSM PROGRAMS  
CUMULATIVE ANNUAL REDUCTIONS  
AT GENERATOR

	SUMMER PEAK (KW)	WINTER PEAK (KW)	NET ENERGY FOR LOAD (KWH)
2001	0	0	11,699,760
2002	0	0	11,917,348
2003	0	0	12,058,957
2004	0	0	12,156,313
2005	0	0	12,236,080
2006	0	0	12,247,893
2007	0	0	12,254,135
2008	0	0	12,261,295
2009	0	0	12,266,270
2010	0	0	12,269,760
2011	0	0	12,273,249

HISTORICAL  
TOTAL NEW DSM PROGRAMS  
CUMULATIVE ANNUAL REDUCTIONS  
AT GENERATOR

	SUMMER PEAK (KW)	WINTER PEAK (KW)	NET ENERGY FOR LOAD (KWH)
2000	48,731	49,186	56,394,295

2002 BUDGET FORECAST  
TOTAL NEW DSM PROGRAMS  
INCREMENTAL ANNUAL REDUCTIONS  
AT GENERATOR

	SUMMER PEAK (KW)	WINTER PEAK (KW)	NET ENERGY FOR LOAD (KWH)
2001	16,612	16,906	23,364,716
2002	14,214	15,786	23,716,785
2003	14,402	16,030	24,070,586
2004	16,480	18,506	25,393,760
2005	16,617	18,701	25,597,432
2006	16,564	18,648	25,588,774
2007	16,617	18,700	25,901,574
2008	16,564	18,647	25,902,044
2009	16,513	18,598	25,907,281
2010	16,514	18,596	25,907,281
2011	6,879	7,368	19,122,180

2002 BUDGET FORECAST  
TOTAL NEW DSM PROGRAMS  
CUMULATIVE ANNUAL REDUCTIONS  
AT GENERATOR

	SUMMER PEAK (KW)	WINTER PEAK (KW)	NET ENERGY FOR LOAD (KWH)
2001	65,343	66,092	79,759,011
2002	79,557	81,878	103,475,796
2003	93,959	97,908	127,546,382
2004	110,439	116,414	152,940,142
2005	127,056	135,115	178,537,574
2006	143,620	153,763	204,126,348
2007	160,237	172,463	230,027,922
2008	176,801	191,110	255,929,966
2009	193,314	209,708	281,837,247
2010	209,828	228,304	307,744,528
2011	216,707	235,672	326,866,708

**HISTORICAL  
RESIDENTIAL NEW DSM PROGRAMS  
CUMULATIVE ANNUAL REDUCTIONS  
AT GENERATOR**

	<b>SUMMER PEAK (KW)</b>	<b>WINTER PEAK (KW)</b>	<b>NET ENERGY FOR LOAD (KWH)</b>
2000	16,835	26,214	13,979,169

**2002 BUDGET FORECAST  
RESIDENTIAL NEW DSM PROGRAMS  
INCREMENTAL ANNUAL REDUCTIONS  
AT GENERATOR**

	<b>SUMMER PEAK (KW)</b>	<b>WINTER PEAK (KW)</b>	<b>NET ENERGY FOR LOAD (KWH)</b>
2001	11,595	14,303	9,147,539
2002	11,787	14,554	9,366,490
2003	11,974	14,799	9,583,180
2004	14,208	17,429	11,240,573
2005	14,396	17,676	11,457,263
2006	14,396	17,675	11,457,263
2007	14,396	17,675	11,457,263
2008	14,396	17,675	11,457,263
2009	14,396	17,676	11,457,264
2010	14,397	17,675	11,457,263
2011	4,762	6,448	4,672,163

**2002 BUDGET FORECAST  
RESIDENTIAL NEW DSM PROGRAMS  
CUMULATIVE ANNUAL REDUCTIONS  
AT GENERATOR**

	<b>SUMMER PEAK (KW)</b>	<b>WINTER PEAK (KW)</b>	<b>NET ENERGY FOR LOAD (KWH)</b>
2001	28,430	40,517	23,126,708
2002	40,217	55,071	32,493,198
2003	52,191	69,870	42,076,378
2004	66,399	87,299	53,316,951
2005	80,795	104,975	64,774,214
2006	95,191	122,650	76,231,477
2007	109,587	140,325	87,688,740
2008	123,983	158,000	99,146,003
2009	138,379	175,676	110,603,267
2010	152,776	193,351	122,060,530
2011	157,538	199,799	126,732,693

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

	<b>SUMMER PEAK (KW)</b>	<b>WINTER PEAK (KW)</b>	<b>NET ENERGY FOR LOAD (KWH)</b>
2000	31,896	22,972	42,415,126

**2002 BUDGET FORECAST  
COMMERCIAL/INDUSTRIAL NEW DSM PROGRAMS  
INCREMENTAL ANNUAL REDUCTIONS  
AT GENERATOR**

	<b>SUMMER PEAK (KW)</b>	<b>WINTER PEAK (KW)</b>	<b>NET ENERGY FOR LOAD (KWH)</b>
2001	5,017	2,603	14,217,177
2002	2,427	1,232	14,350,295
2003	2,428	1,231	14,487,406
2004	2,272	1,077	14,153,187
2005	2,221	1,025	14,140,169
2006	2,168	973	14,131,511
2007	2,221	1,025	14,444,311
2008	2,168	972	14,444,781
2009	2,117	922	14,450,017
2010	2,117	921	14,450,018
2011	2,117	920	14,450,017

**2002 BUDGET FORECAST  
COMMERCIAL/INDUSTRIAL NEW DSM PROGRAMS  
CUMULATIVE ANNUAL REDUCTIONS  
AT GENERATOR**

	<b>SUMMER PEAK (KW)</b>	<b>WINTER PEAK (KW)</b>	<b>NET ENERGY FOR LOAD (KWH)</b>
2001	36,913	25,575	56,632,303
2002	39,340	26,807	70,982,598
2003	41,768	28,038	85,470,004
2004	44,040	29,115	99,623,191
2005	46,261	30,140	113,763,360
2006	48,429	31,113	127,894,871
2007	50,650	32,138	142,339,182
2008	52,818	33,110	156,783,963
2009	54,935	34,032	171,233,980
2010	57,052	34,953	185,683,998
2011	59,169	35,873	200,134,015



HISTORICAL  
OTHER NEW DSM PROGRAMS  
CUMULATIVE ANNUAL REDUCTIONS  
AT GENERATOR

	SUMMER PEAK (KW)	WINTER PEAK (KW)	NET ENERGY FOR LOAD (KWH)
2000	0	0	0

2002 BUDGET FORECAST  
OTHER NEW DSM PROGRAMS  
INCREMENTAL ANNUAL REDUCTIONS  
AT GENERATOR

	SUMMER PEAK (KW)	WINTER PEAK (KW)	NET ENERGY FOR LOAD (KWH)
2001	0	0	0
2002	0	0	0
2003	0	0	0
2004	0	0	0
2005	0	0	0
2006	0	0	0
2007	0	0	0
2008	0	0	0
2009	0	0	0
2010	0	0	0
2011	0	0	0

2002 BUDGET FORECAST  
OTHER NEW DSM PROGRAMS  
CUMULATIVE ANNUAL REDUCTIONS  
AT GENERATOR

	SUMMER PEAK (KW)	WINTER PEAK (KW)	NET ENERGY FOR LOAD (KWH)
2001	0	0	0
2002	0	0	0
2003	0	0	0
2004	0	0	0
2005	0	0	0
2006	0	0	0
2007	0	0	0
2008	0	0	0
2009	0	0	0
2010	0	0	0
2011	0	0	0

## VII. SMALL POWER PRODUCTION / RENEWABLE ENERGY

The current forecasts also consider Gulf's active position in the promotion of renewable energy resources. Following is a list of the cumulative small power producer capability anticipated in the base case forecast. This includes both waste-to-energy projects and other renewable fuel projects.

### Small Power Producers Net Capability

<u>Year</u>	<u>MW</u>
2001	30
2002	30
2003	30
2004	30
2005	11
2006	11
2007	11
2008	11
2009	11
2010	11
2011	11

Additionally, 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 approximately 256 customers contributing \$36,785 through December, 2001. 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.

Gulf Power Company customers also now have the opportunity to participate in a recent Florida Public Service Commission approved solar energy project. EarthCents was developed as a renewable energy program that will include a portfolio of renewable energy choices. The EarthCents Solar Program gives customers an opportunity to help pay for the construction of a photovoltaic generating facility. This project is a Southern Company-wide effort; with Gulf Power Company and her sister company Alabama Power the first to roll out their programs. The facility will be built within Southern's territory or the power will be purchased from other photovoltaic generating facilities. Approximately 10,000 customers are initially needed to sign up in order to begin construction of a 1 MW generating facility.

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 exists 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.

**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)
Year	Population *	Rural and Residential				Commercial		
		Members per Household	Average GWH	Average No. of Customers	Average KWH Consumption Per Customer	Average GWH	Average No. of Customers	Average KWH Consumption Per Customer
1992	703,866	2.65	3,597	265,374	13,553	2,369	36,009	65,796
1993	725,009	2.67	3,713	271,594	13,671	2,433	38,477	63,242
1994	746,896	2.68	3,752	278,215	13,486	2,549	39,989	63,739
1995	758,152	2.67	4,014	283,717	14,148	2,708	41,007	66,043
1996	765,337	2.66	4,160	287,752	14,457	2,809	42,381	66,271
1997	787,958	2.66	4,119	296,497	13,894	2,898	43,955	65,928
1998	810,881	2.66	4,438	304,413	14,577	3,112	45,510	68,379
1999	842,544	2.70	4,471	312,283	14,318	3,223	47,292	68,141
2000	860,576	2.69	4,790	319,506	14,992	3,379	47,584	71,021
2001	875,744	2.69	4,716	325,343	14,497	3,417	48,482	70,489
2002	892,469	2.69	4,791	331,970	14,433	3,315	49,463	67,019
2003	909,204	2.69	4,805	338,615	14,190	3,322	50,537	65,738
2004	924,404	2.68	4,871	344,736	14,130	3,378	51,646	65,412
2005	938,219	2.68	4,942	350,402	14,103	3,442	52,700	65,319
2006	952,336	2.67	5,033	356,181	14,132	3,501	53,774	65,113
2007	966,775	2.67	5,122	362,042	14,147	3,554	54,861	64,775
2008	981,912	2.67	5,226	368,005	14,200	3,611	55,966	64,514
2009	998,026	2.67	5,331	374,212	14,246	3,663	57,107	64,149
2010	1,014,411	2.67	5,447	380,534	14,315	3,721	58,271	63,861
2011	1,029,545	2.66	5,579	386,397	14,439	3,779	59,360	63,670
<b>CAAG</b>								
92-01	2.5%	0.2%	3.1%	2.3%	0.8%	4.2%	3.4%	0.8%
01-06	1.7%	-0.1%	1.3%	1.8%	-0.5%	0.5%	2.1%	-1.6%
01-11	1.6%	-0.1%	1.7%	1.7%	0.0%	1.0%	2.0%	-1.0%

\* 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				
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	1,846	251	7,357,969	0	18	0	9,558
2000	1,925	270	7,128,700	0	18	0	10,112
2001	2,018	277	7,285,943	0	21	0	10,173
2002	2,138	324	6,599,715	0	21	0	10,266
2003	2,188	344	6,361,464	0	22	0	10,337
2004	2,185	348	6,277,822	0	22	0	10,456
2005	2,180	351	6,212,130	0	22	0	10,587
2006	2,192	354	6,191,761	0	22	0	10,749
2007	2,176	357	6,095,704	0	23	0	10,874
2008	2,160	361	5,982,443	0	23	0	11,019
2009	2,142	364	5,885,905	0	23	0	11,160
2010	2,124	367	5,786,547	0	23	0	11,316
2011	2,108	370	5,698,443	0	24	0	11,491
<b>CAAG</b>							
92-01	-0.9%	0.6%	-1.5%	0.0%	3.2%	0.0%	2.5%
01-06	1.7%	5.0%	-3.2%	0.0%	1.2%	0.0%	1.1%
01-11	0.4%	2.9%	-2.4%	0.0%	1.2%	0.0%	1.2%

**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>	<u>Sales for Resale GWH</u>	<u>Utility Use &amp; Losses GWH</u>	<u>Net Energy for Load GWH</u>	<u>Other Customers (Average No.)</u>	<u>Total No. of Customers</u>
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	348	558	10,464	286	360,113
2000	363	629	11,105	380	367,740
2001	360	671	11,204	460	374,561
2002	357	683	11,305	466	382,223
2003	362	689	11,389	468	389,963
2004	369	699	11,524	509	397,238
2005	376	709	11,672	572	404,025
2006	382	722	11,853	623	410,932
2007	389	732	11,996	657	417,917
2008	396	744	12,159	680	425,011
2009	403	755	12,318	696	432,378
2010	411	767	12,494	707	439,878
2011	418	780	12,689	715	446,841
<b>CAAG</b>					
92-01	2.1%	6.2%	2.7%	22.5%	2.4%
01-06	1.2%	1.5%	1.1%	6.3%	1.9%
01-11	1.5%	1.5%	1.3%	4.5%	1.8%

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>
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	2,283	75	2,208	0	0	107	0	136	2,040
1998	2,422	82	2,340	16	0	115	0	138	2,154
1999	2,432	84	2,347	0	0	120	0	143	2,169
2000	2,576	86	2,490	17	0	128	0	142	2,289
2001	2,519	78	2,441	0	0	141	0	147	2,231
2002	2,528	77	2,451	27	0	154	0	150	2,224
2003	2,551	78	2,473	27	0	167	0	152	2,231
2004	2,589	79	2,509	27	0	183	0	155	2,251
2005	2,631	81	2,550	27	0	198	0	157	2,275
2006	2,682	82	2,600	27	0	214	0	160	2,308
2007	2,727	84	2,643	23	0	230	0	162	2,335
2008	2,778	85	2,693	18	0	245	0	165	2,368
2009	2,829	87	2,742	14	0	261	0	167	2,401
2010	2,885	88	2,797	10	0	277	0	170	2,439
2011	2,942	90	2,853	6	0	283	0	172	2,488
<b>CAAG</b>									
92-01	2.5%	1.1%	2.5%	100.0%	0.0%	5.7%	0.0%	4.8%	2.2%
01-06	1.3%	1.0%	1.3%	100.0%	0.0%	8.7%	0.0%	1.7%	0.7%
01-11	1.6%	1.4%	1.6%	100.0%	0.0%	7.2%	0.0%	1.6%	1.1%

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>
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	1,981	61	1,919	0	0	171	0	118	1,692
98-99	2,392	79	2,313	0	0	177	0	122	2,093
99-00	2,225	75	2,150	0	0	188	0	126	1,911
00-01	2,494	86	2,408	0	0	205	0	128	2,160
01-02	2,507	65	2,442	28	0	222	0	130	2,155
02-03	2,544	66	2,478	28	0	239	0	131	2,174
03-04	2,575	67	2,507	28	0	258	0	133	2,184
04-05	2,609	69	2,540	28	0	278	0	134	2,197
05-06	2,650	70	2,581	28	0	297	0	135	2,218
06-07	2,687	71	2,616	24	0	317	0	137	2,234
07-08	2,729	72	2,657	19	0	337	0	138	2,255
08-09	2,770	74	2,696	15	0	356	0	139	2,275
09-10	2,814	75	2,739	11	0	376	0	140	2,298
10-11	2,862	76	2,785	7	0	384	0	141	2,336
<b>CAAG</b>									
92-01	3.9%	4.0%	3.9%	0.0%	0.0%	5.0%	0.0%	2.9%	3.8%
01-06	1.2%	-3.9%	1.4%	0.0%	0.0%	7.7%	0.0%	1.0%	0.5%
01-11	1.4%	-1.1%	1.5%	0.0%	0.0%	6.5%	0.0%	1.0%	0.8%

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>
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	10,408	282	239	8,938	342	607	9,887	55.3%
1998	10,950	292	257	9,401	356	645	10,402	55.1%
1999	11,036	298	274	9,558	348	558	10,464	55.1%
2000	11,691	306	280	10,112	363	629	11,105	55.2%
2001	11,816	318	295	10,173	360	671	11,204	57.3%
2002	11,945	330	310	10,266	357	683	11,305	58.0%
2003	12,056	341	326	10,337	362	689	11,389	58.3%
2004	12,219	354	341	10,456	369	699	11,524	58.4%
2005	12,395	368	356	10,587	376	709	11,672	58.6%
2006	12,605	381	370	10,749	382	722	11,853	58.6%
2007	12,776	394	386	10,874	389	732	11,996	58.6%
2008	12,968	408	401	11,019	396	744	12,159	58.6%
2009	13,156	421	416	11,160	403	755	12,318	58.6%
2010	13,360	435	431	11,316	411	767	12,494	58.5%
2011	13,577	441	447	11,491	418	780	12,689	58.2%
<b>CAAG</b>								
92-01	2.7%	3.2%	4.3%	2.5%	2.1%	6.2%	2.7%	0.5%
01-06	1.3%	3.7%	4.6%	1.1%	1.2%	1.5%	1.1%	0.4%
01-11	1.4%	3.3%	4.2%	1.2%	1.5%	1.5%	1.3%	0.2%

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)
	2001 Actual		2002 Forecast		2003 Forecast	
Month	Peak Demand MW	NEL GWH	Peak Demand MW	NEL GWH	Peak Demand MW	NEL GWH
January	2,114	982	2,155	944	2,174	956
February	1,590	727	1,893	791	1,845	775
March	1,609	806	1,646	802	1,675	818
April	1,714	819	1,483	751	1,495	757
May	1,956	965	1,985	986	1,987	989
June	2,076	1,094	2,147	1,133	2,153	1,137
July	2,231	1,188	2,224	1,180	2,231	1,188
August	2,129	1,149	2,206	1,211	2,220	1,227
September	2,106	996	2,082	1,010	2,104	1,023
October	1,745	856	1,663	817	1,688	829
November	1,496	780	1,525	761	1,535	768
December	1,751	841	1,905	919	1,900	921

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 2000</u>	<u>Actual 2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>
(1)	Nuclear		Trillion BTU	None	None	None	None	None	None	None	None	None	None	None	None
(2)	Coal		1000 TON	5,794	5,077	5,856	5,787	5,548	5,575	4,941	5,242	5,566	5,679	5,677	5,703
(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	41	28	18	13	16	13	13	11	9	8	9	10
(9)		Steam	1000 BBL	12	14	10	11	11	10	11	11	9	8	9	10
(10)		CC	1000 BBL	None	None	None	None	None	None	None	None	None	None	None	None
(11)		CT	1000 BBL	29	14	8	2	5	3	2	0	0	0	0	0
(12)	Diesel		1000 BBL	None	None	None	None	None	None	None	None	None	None	None	None
(13)	Natural Gas	Total	1000 MCF	2,319	1,135	14,376	24,073	26,242	27,340	30,831	29,360	29,131	29,247	27,907	24,093
(14)		Steam	1000 MCF	2,319	1,135	2,490	2,227	2,153	2,172	2,288	2,237	2,190	2,417	2,549	2,335
(15)		CC	1000 MCF	None	None	11,887	21,847	24,089	25,169	28,543	27,123	26,027	25,562	23,893	20,810
(16)		CT	1000 MCF	None	None	None	None	None	None	None	None	915	1,268	1,465	947
(17)	Other		Trillion BTU	None	None	None	None	None	None	None	None	None	None	None	None

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 2000	Actual 2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
(1)	Annual Firm Interchange		GWH	(1,888)	(333)	(4,390)	(5,616)	(5,233)	(5,226)	(3,995)	(4,396)	(4,896)	(4,986)	(4,546)	(3,856)
(2)	Nuclear		GWH	None	None	None	None	None	None	None	None	None	None	None	None
(3)	Coal		GWH	12,627	11,290	13,657	13,529	12,944	12,986	11,480	12,221	12,971	13,245	13,218	13,264
(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	12	6	3	1	2	1	1	0	0	0	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	12	6	3	1	2	1	1	0	0	0	0	0
(13)		Diesel	GWH	None	None	None	None	None	None	None	None	None	None	None	None
(14)	Natural Gas	Total	GWH	227	127	1,928	3,372	3,707	3,869	4,367	4,171	4,084	4,059	3,822	3,281
(15)		Steam	GWH	136	63	187	171	166	167	175	172	169	186	194	178
(16)		CC	GWH	None	None	1,737	3,200	3,539	3,700	4,188	3,995	3,828	3,753	3,489	3,016
(17)		CT	GWH	91	64	4	1	2	2	4	4	87	120	139	87
(18)	NUGs		GWH	127	114	107	103	104	42	0	0	0	0	0	0
(19)	Net Energy for Load		GWH	11,105	11,204	11,305	11,389	11,524	11,672	11,853	11,996	12,159	12,318	12,494	12,689

NOTE: Includes 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)
	<u>Energy Sources</u>		<u>Units</u>	<u>Actual 2000</u>	<u>Actual 2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>
(1)	Annual Firm Interchange		%	(17.00)	(2.97)	(38.83)	(49.31)	(45.41)	(44.77)	(33.70)	(36.65)	(40.27)	(40.48)	(36.39)	(30.39)
(2)	Nuclear		%	None	None	None	None	None	None	None	None	None	None	None	None
(3)	Coal		%	113.71	100.77	120.80	118.79	112.32	111.26	96.85	101.88	106.68	107.53	105.79	104.53
(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	%	0.11	0.05	0.03	0.01	0.02	0.01	0.01	0.00	0.00	0.00	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	%	0.11	0.05	0.03	0.01	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00
(13)		Diesel	%	None	None	None	None	None	None	None	None	None	None	None	None
(14)	Natural Gas	Total	%	2.04	1.13	17.05	29.61	32.17	33.15	36.84	34.77	33.59	32.95	30.59	25.86
(15)		Steam	%	1.22	0.56	1.65	1.50	1.44	1.43	1.48	1.43	1.39	1.51	1.55	1.40
(16)		CC	%	None	None	15.36	28.10	30.71	31.70	35.33	33.30	31.48	30.47	27.93	23.77
(17)		CT	%	0.82	0.57	0.04	0.01	0.02	0.02	0.03	0.03	0.72	0.97	1.11	0.69
(18)	NUGs		%	1.14	1.02	0.95	0.90	0.90	0.36	0.00	0.00	0.00	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

## CHAPTER III

### PLANNING ASSUMPTIONS AND PROCESSES

## **THE INTEGRATED RESOURCE PLANNING PROCESS**

Gulf Power Company participates in the Southern electric system's Integrated Resource Planning (IRP) process. The 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.

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 15.0% reserve margin target for the year 2005 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<sup>®</sup>, 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<sup>®</sup> 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. The costs of performing full-blown IRPs on an annual basis with such little change would not be justifiable.

## **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 potential problem with the transmission system that warrants the consideration of correction to maintain or restore 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 being corrected. This may be due to the small magnitude of the problem or because the probability of

occurrence is insufficient to justify the capital investment of the solution.

Gulf Power Company has made a series of purchased power arrangements to meet its needs prior to the summer of 2002. 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 any 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 Company's Electric System (SES), including such diverse uses as long-term generation planning and short-term fuel budgeting. SES'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 17 different coal classifications used on the SES. Because natural gas does not experience the same quality variations as coal, Southern prepares a single commodity price forecast for gas. In the case of natural gas, a price basis is applied to the single commodity price forecast for the Henry Hub, a delivery pricing point in Louisiana, and the various pipelines serving SES's Plants. This price basis is based on historical averages between the various pipelines. Six price forecasts are developed for oil, based on grade of oil, sulfur and heat content.

The level of detail with which transportation costs are projected depends on the purpose for which the forecast will be used. Generic transportation costs reflecting an average



cost for delivery within SES's territory are used in the delivered price forecast when 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 both the IRP process and the fuel budget process. 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.

#### **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 Southern Company Services Fuel Procurement staff with input from outside consultants. The forecast is approved by a fuel panel consisting of fuel procurement managers responsible for the fuel programs of each of the five operating companies.

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 Energy Ventures Analysis, Cambridge Energy Research Associates, Resource Data International, PIRA Energy Group, WEFA Energy Services, Hill and Associates, Regional Financial Associates, Coal Ink Consultancy Ltd 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.

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 a commodity forecast for each type of fuel. The Fuel Panel's 2001 commodity price forecasts for 1.0% sulfur coal, low sulfur #2 oil, and natural gas are included in the table on the following page.

SOUTHERN GENERIC FUEL PRICE FORECAST  
(\$/MMBtu)

	<u>COAL*</u>	<u>NAT. GAS</u>	<u>OIL **</u>
2002	1.583	4.031	4.874
2003	1.333	3.821	4.148
2004	1.250	3.575	4.148
2005	1.208	3.227	4.148
2006	1.208	2.677	4.355
2007	1.221	3.053	4.573
2008	1.237	3.327	4.802
2009	1.250	3.454	4.994
2010	1.280	3.974	5.194
2011	1.220	4.423	5.401

\*Central Appalachia, 12000 BTU/lb., 1% Sulfur

\*\* SES No.2 Oil, 0.05% Sulfur

**COAL PRICE FORECAST**

The information provided during the Fuel Price Workshop is used to develop the SES forecast of generic coal prices. In general, coal has experienced real price declines over the last several decades. There are ample reserves of coal and the industry has experienced downward price pressures from environmental regulations, readily available coal supplies, and competition from import coals and efficient gas turbine technology. In the latter part of 2000 and early 2001, real price increases in coal resulted from strong demand (weather driven), short-term supply constraints and transportation delivery issues. We expect to see the market stabilize over the next 12 months and return to more normal prices.

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 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 few years, success rates in drilling offshore exploration wells have improved dramatically. 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 sufficient supply of volumes of gas in the near future.

## **NATURAL GAS AVAILABILITY**

Gas supplies in the SES region will improve substantially over the next five years. Producers have announced major discoveries in the Gulf of Mexico. Suppliers forecast that an additional 4 Bcf per day should be available by the year 2005. Additionally, Canadian producers and pipelines have announced their plans to increase gas imports from both Eastern and Western Canada. Finally, liquefied natural gas (LNG) imports at Elba Island, GA and Lake Charles, Louisiana will increase gas supply about 1.5 Bcf per day by May of 2002. These developments suggest that by 2005, U.S. gas supplies (specifically the SES region) should increase 15-16% above current levels.

Near-term (2002-2004), demands in advance of new offshore pipeline construction, deepwater Gulf of Mexico development, increased LNG imports, Alaskan and/or Far North Canadian and Eastern Canadian development will impose upward pressure on the price of natural gas. After the new pipelines and developments are in place, natural gas supplies are expected to stabilize.

Assuming the construction of additional pipeline facilities and continuing development of new production, sufficient natural gas supplies are available in the Southeastern United States to support full load operation of SES's Gas-based Power Plants.

## **STRATEGIC ISSUES**

As mentioned earlier, Gulf's purchased power arrangements will be replaced by the commercial operation of Smith Unit 3 beginning June 1, 2002. The flexibility of purchases allowed the Company to react quickly to changes that have occurred over the past few years without serious negative financial impacts. Gulf fully expects to build new generating capacity in the future to maintain reliability. The Company will continue to supplement its acquisition of long-term capacity resources with power purchases if it is appropriate and cost-effective to do so in the future.

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 has secured firm energy at prices that have led to significant savings to the Southern electric system, Gulf, and its customers.

## **ENVIRONMENTAL CONCERNS**

As mentioned before, Gulf's existing generation resources and power purchases take care of its capacity resource needs until June 2002 when the Company's new combined cycle generating unit, Smith Unit 3 will commence commercial operation. This generator is currently nearing the end of its testing at an existing site, the Smith Electric Generating Plant, and as such would not be considered a greenfield site and did not need extensive environmental studies leading to obtaining construction and operating permits.

The next planned resource addition after the above mentioned unit is a 157 MW combustion turbine in 2008 at the Smith Plant. 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 status 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 CAAA. 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-NO<sub>x</sub> burners on two large coal-fired units to support compliance with Title IV NO<sub>x</sub> requirements. In addition, Gulf Power brought 4 Phase II units into Phase I as 1995 substitution units. All of these



units were affected for SO<sub>2</sub> and NO<sub>x</sub> starting in 1995 and are grandfathered at the Phase I NO<sub>x</sub> limits during Phase II.

With respect to Phase II sulfur dioxide compliance, Gulf Power is using additional fuel switching coupled with the use of emission allowances banked during Phase I and the acquisition of additional allowances to meet compliance. Only minor differences in the fuel selection at several plants is needed 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 non-attainment or revised ambient standards, are aimed at further NO<sub>x</sub> and SO<sub>2</sub> 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**

On June 7, 1999, the Company filed 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 considered were 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 only 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. Additional environmental and land use information for the selected site is included in the appendix, which is an excerpt from the SCA. Environmental permits were approved on July 25, 2000.

## **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 2002 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 prior to the summer of 2002. 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**

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 decided to proceed with constructing Smith Unit 3, for which the Company has received a Commission determination of need.

Environmental permits were approved on July 25, 2000 and construction is proceeding on schedule.

**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 install a 157 MW combustion turbine (CT) in 2008 at the Smith Plant. This addition is currently planned as outlined in Schedule 8 of this document. The Company will continue to review all available capacity resources in order to make sure that its customer's electricity needs are met, but in the most economical manner as well.

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
2002	2825	27	(210)	19	2661	2224	437	19.6%	NONE	437	19.6%
2003	2822	27	(210)	19	2658	2231	427	19.1%		427	19.1%
2004	2809	27	(210)	19	2645	2251	394	17.5%		394	17.5%
2005	2803	27	(210)	0	2620	2275	345	15.2%		345	15.2%
2006	2803	57	(210)	0	2650	2308	342	14.8%		342	14.8%
2007	2771	83	(210)	0	2644	2335	309	13.2%		309	13.2%
2008	2928	18	(210)	0	2736	2368	368	15.5%		368	15.5%
2009	2928	14	(210)	0	2732	2401	331	13.8%		331	13.8%
2010	2928	10	0	0	2938	2439	499	20.5%		499	20.5%
2011	2928	6	0	0	2934	2488	446	17.9%		446	17.9%

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

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
YEAR	TOTAL INSTALLED CAPACITY MW	FIRM CAPACITY IMPORT MW (A)	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
2001-02	2262	321	(219)	19	2383	2155	228	10.6%	NONE	228	10.6%
2002-03	2836	28	(210)	19	2673	2174	499	23.0%		499	23.0%
2003-04	2833	28	(210)	19	2670	2184	486	22.3%		486	22.3%
2004-05	2820	28	(210)	19	2657	2197	460	20.9%		460	20.9%
2005-06	2814	28	(210)	0	2632	2218	414	18.7%		414	18.7%
2006-07	2814	24	(210)	0	2628	2234	394	17.6%		394	17.6%
2007-08	2774	19	(210)	0	2583	2255	328	14.5%		328	14.5%
2008-09	2931	15	(210)	0	2736	2275	461	20.3%		461	20.3%
2009-10	2931	11	(210)	0	2732	2298	434	18.9%		434	18.9%
2010-11	2931	7	0	0	2938	2336	602	25.8%			

NOTE: (A) INCLUDES FIRM PURCHASES AND ESTIMATED DEMAND SIDE OPTIONS.



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)
Plant Name	Unit No.	Location	Unit Type	Fuel		Fuel Transport		Const Start Mo/Yr	Com'l In-Service Mo/Yr	Expected Retirement Mo/Yr	Gen Max Nameplate KW	Net Capability		Status
				Pri	Alt	Pri	Alt					Summer MW	Winter MW	
Lansing Smith	3	Bay County 36/2S/15W	CC	NG	--	PL	--	11/00	06/02			574.0	574.0	V
Lansing Smith	A	Bay County 36/2S/15W	CT	LO	--	TK	--	--	--	12/06	41,850	(32.0)	(40.0)	R
Lansing Smith	4	Bay County 36/2S/15W	CT	NG	LO	PL	TK	07/07	06/08			157.0	157.0	P

8

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  
 V - Under construction, more than 50% complete

Schedule 9  
 Status Report and Specifications of Proposed Generating Facilities

(1)	Plant Name and Unit Number:	Lansing Smith Unit 3
(2)	Capacity	
	a. Summer:	574 MW
	b. Winter:	574 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:	Under construction, more than 50% complete
(10)	Certification Status:	Certified
(11)	Status with Federal Agencies:	Approved
(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):	6,924 For 566 MW - average @ 69 deg F
		7,271 For 574 MW - peaking @ 95 deg F
(13)	Projected Unit Financial Data	
	Book Life (Years):	25
	Total Installed Cost (In-Service Year \$/kW):	384
	Direct Construction Cost ('02 \$/kW):	360
	AFUDC Amount (\$/kW):	24
	Escalation (\$/kW):	0
	Fixed O&M (\$/kW - Yr):	3.59
	Variable O&M (\$/MWH):	0.67
	K Factor:	1.5591

Schedule 9  
 Status Report and Specifications of Proposed Generating Facilities

(1)	Plant Name and Unit Number:	Lansing Smith Unit 4
(2)	Capacity	
	a. Summer:	157 MW
	b. Winter:	157 MW
(3)	Technology Type:	Combustion Turbine
(4)	Anticipated Construction Timing	
	a. Field construction start - date:	07/07
	b. Commercial in-service date:	06/08
(5)	Fuel	
	a. Primary fuel:	Natural Gas
	b. Alternate fuel:	Distillate
(6)	Air Pollution Control Strategy:	Dry low NOx combustor for natural gas Water injection for NOx control for distillate
(7)	Cooling Method:	Evaporative cooling
(8)	Total Site Area:	1340 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):	2.5%
	Equivalent Availability Factor (EAF):	95.8%
	Resulting Capacity Factor (%):	15.0%
	Average Net Operating Heat Rate (ANOHR):	11,290
(13)	Projected Unit Financial Data	
	Book Life (Years):	20
	Total Installed Cost (In-Service Year \$/kW):	449
	Direct Construction Cost ('02 \$/kW):	402
	AFUDC Amount (\$/kW):	0
	Escalation (\$/kW):	47
	Fixed O&M (\$/kW - Yr):	5.27
	Variable O&M (\$/MWH):	9.43
	K Factor:	1.4902

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 Reconductor: Smith - Highland City 115 kV line Smith - Greenwood 115 kV line Highland City - Callaway 115 kV line
(2) Number of Lines:	4
(3) Right-of-Way:	None
(4) Line Length:	1,000 feet (new) 19.1 miles (reconductor)
(5) Voltage:	230 kV (new) 115 kV (reconductor)
(6) Anticipated Construction Timing:	Complete
(7) Anticipated Capital Investment:	\$4,071,890
(8) Substations:	1
(9) Participation with Other Utilities:	N/A

## APPENDIX

## **EXECUTIVE SUMMARY**

Gulf Power Company (Gulf) plans to construct, own, and operate a new electric power generating plant in Bay County, Florida. The Smith Unit 3 Project (Smith Unit 3 or the Project) will be capable of producing up to 574 megawatts (MW) of electricity using state-of-the-art technology and clean, natural gas fuel.

Gulf, which is a wholly-owned subsidiary of Southern Company, serves approximately 350,000 customers in northwest Florida. Gulf has determined that in order to continue providing reliable, cost-effective service to its customers, it must add at least 427 MW of new generating resources to its system by summer of 2002. The most cost-effective means to meet this need is construction of Smith Unit 3 at Gulf's existing Lansing Smith Electric Generating Plant north of Panama City, Florida.

On March 15, 1999, Gulf filed a petition with the Florida Public Service Commission to demonstrate that the Project is needed to meet the growing demand for power in the Florida panhandle. The need petition shows that the Project will be a reliable, cost-effective, and environmentally friendly power generation resource in Florida.

### **ES.1 THE SITE CERTIFICATION APPLICATION**

The licensing of electrical power plants in Florida requires compliance with applicable federal, state, and local laws, regulations, and ordinances. The most comprehensive state law governing the licensing of the Smith Unit 3 Project is the Florida Electrical Power Plant Siting Act (FEPPSA). The FEPPSA establishes the State's policy to balance the need for new power plant facilities with the potential effects of the facility's construction and operation on human health, welfare, and environmental resources of the state. To implement this policy, the FEPPSA establishes a centrally coordinated permitting process. The FEPPSA proceedings are initiated when the applicant files a site certification application (SCA) with the Florida Department of Environmental Protection (FDEP), which administers and coordinates the process with affected agencies, governmental entities, other parties, and the applicant. The process concludes with the approval or certification of the power plant by the Governor and Cabinet, sitting as the Siting Board.

The FDEP procedures for implementing the FEPPSA are contained in Chapter 62-17, Florida Administrative Code (F.A.C.). In this case, the SCA for the Project has been prepared in compliance with the requirements contained in the FDEP *Instruction Guide For Certification Applications* (FDEP Form 62-1.211[1], F.A.C.). The SCA demonstrates that the Project will comply with all applicable laws, regulations, and standards.

## **ES.2 SITE AND VICINITY CHARACTERISTICS**

The proposed site for the Project is located at Gulf's existing Lansing Smith Plant in central Bay County, northwest of Panama City (T2S, R15W, Section 36). The site is owned by Gulf, as is all the surrounding property to the site.

Figures ES-1 and ES-2 show the location of the Project within the State of Florida and within Bay County, respectively. Figure ES-3 shows the location of the proposed 50.1-acre site relative to the existing Smith Plant. The site is located at the end of County Road (CR) 2300 which connects to State Road (SR) 77.

The site is currently in silvicultural operations, with planted pine dominating the site. The existing Smith plant is an industrial land use, but otherwise the surrounding vicinity is rural and in a natural state. No residential development is found within a 2-mile radius.

## **ZONING AND LAND USE REGULATIONS**

The Project site is currently located in the Agricultural land use classification as depicted on Bay County's 1990 Adopted Comprehensive Plan Future Land Use Map (FLUM). Power plants are not an allowable use in this land use designation.

To be consistent with the adopted comprehensive plan, Gulf has submitted a large-scale plan amendment application to change the FLUM from Agriculture to Industrial. The Industrial category will allow for development of the Project and will be consistent with the existing designation for the adjacent Lansing Smith Plant (Units 1 and 2). The plan amendment was submitted in May 1999 and is expected to be adopted in Fall 1999.

ES-3

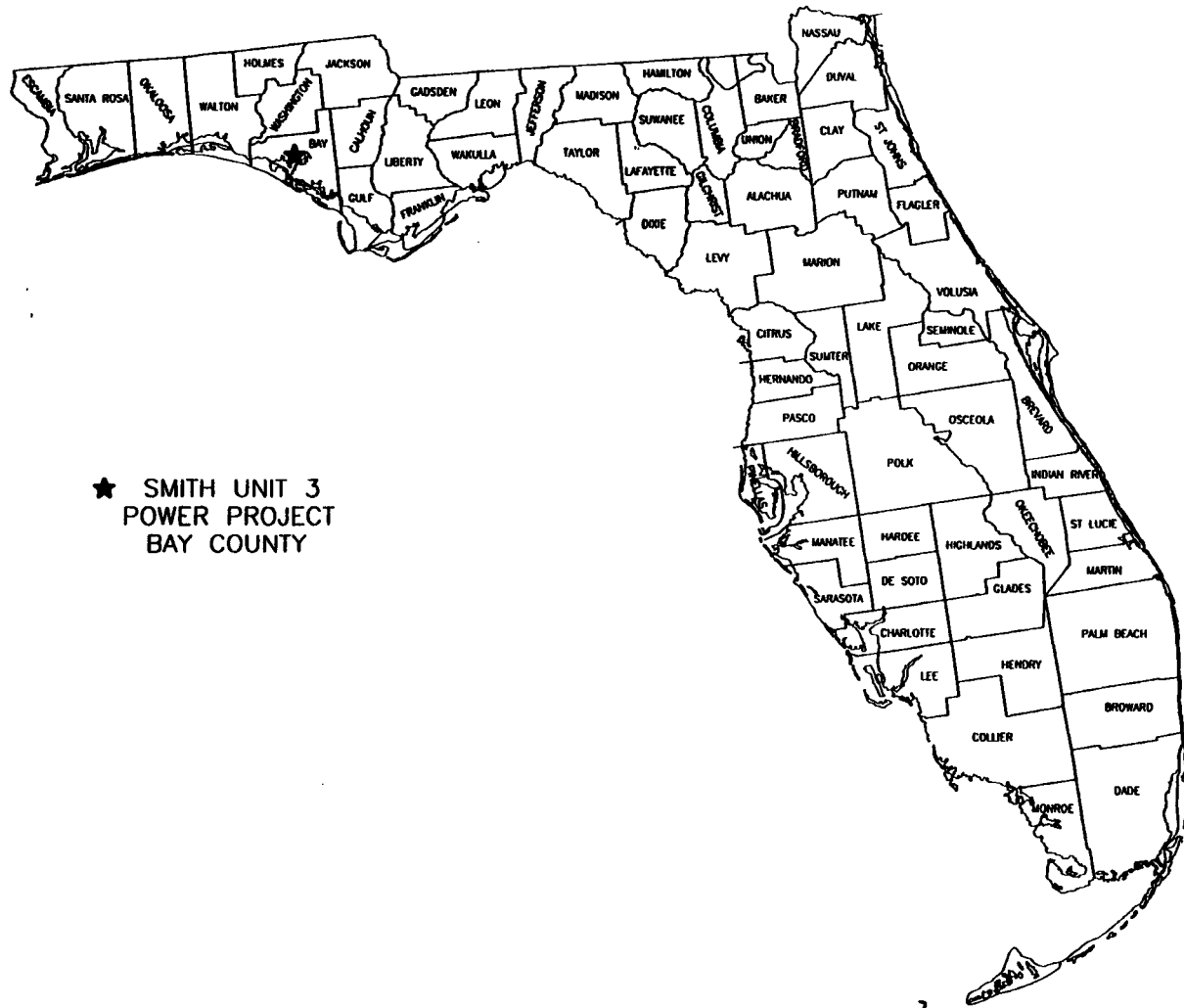


FIGURE ES-1.  
SITE LOCATION

Source: ECT, 1999.

**ECT**  
Environmental Consulting & Technology, Inc.





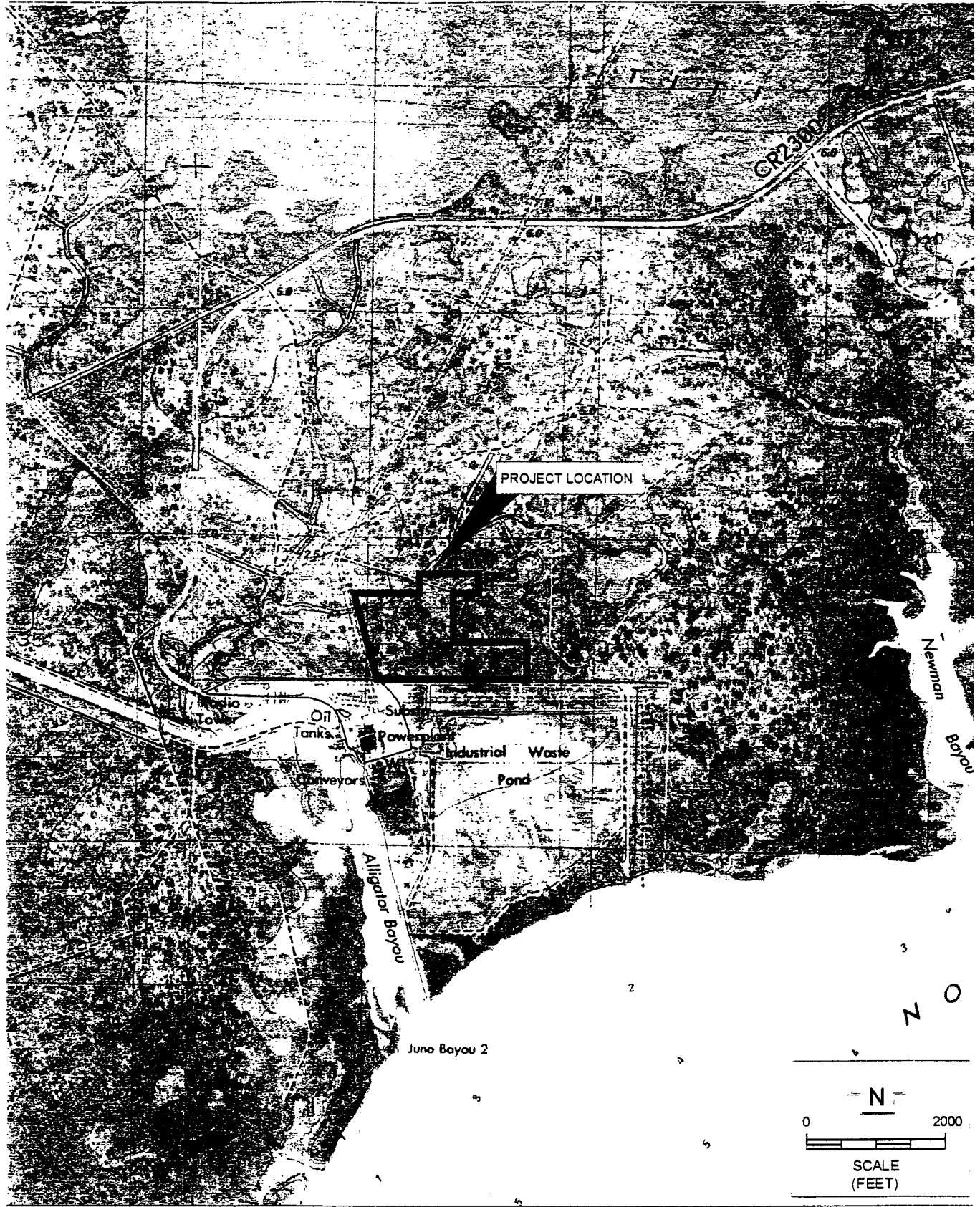


FIGURE ES-3.

PROJECT SITE LOCATION RELATIVE TO LANSING SMITH PLANT

Sources: USGS topo map of Southport, Fl., 1992; ECT, 1999.

**ECT**  
 Environmental Consulting & Technology, Inc.

In Bay County, zoning is consistent with the land use plan designations. Therefore, when the FLUM is approved, so will the corresponding zoning for the site.

No sensitive natural resource, scenic, or cultural lands are located on the proposed site. No known archaeological or historic resources are located on the site.

## **GEOLOGICAL FEATURES**

The Project site is located on the Pamlico Terrace in an area of low relief between elevation 5 and 8 feet above mean sea level. The site is underlain by a thick sequence of Tertiary-age sediments that generally dip to the southwest. Formations range from the Pleistocene marine terraces (loose, permeable silts and sands) that extend to 20 feet below land surface, to the Bruce Creek Limestone formation (a limestone dominated by macrofossils) that is approximately 300 feet thick.

No geologic faults have been mapped for the site; therefore, faults pose no hazard to site development. Karst development and sinkhole potential are low. Geotechnical investigations performed on the site indicate it can be safely used for the intended Project, providing standard engineering practices are employed.

## **GROUND WATER**

The Smith Unit 3 Project is located in the Econfina Creek Basin. Four hydrogeologic units define the regional system:

- The surficial aquifer system.
- The intermediate system.
- The Floridan aquifer system.
- The sub-Floridan confining unit.

The Floridan aquifer system provides over 90 percent of the ground water supplies for northwest Florida. The surficial aquifer system is of poor quality and is only used for irrigation and surface water recharge.

## **SURFACE WATER**

There are numerous fresh water wetlands intermixed with the pine plantations of the site vicinity. No natural lakes, ponds, streams, or rivers are found on the site. Most of these wetlands drain to the southwest or west, eventually to West Bay.

The marine environment of St. Andrew Bay is the major surface water feature in the site vicinity. This system has been well studied by Gulf and others. Currently, the Lansing Smith Plant uses surface water from North Bay for once-through cooling at Units 1 and 2. The cooling water is ultimately discharged through a nearly 2-mile-long canal to West Bay, where the thermal mixing zone occurs. The current discharge meets all applicable water quality standards for the Bay which is a Class II water.

## **ECOLOGICAL FEATURES**

Approximately 95 percent of the site is vegetated. Wetlands cover approximately 50 percent of the site but most of these are wet, planted pine plantations. Cypress-titi swamps represent the higher quality wetlands found onsite.

No unique habitats are found onsite. No listed wildlife species were observed onsite and none are likely to depend on the site's resources for their habitat needs. Four listed plant species were found onsite, one of which, the panhandle spiderlily, is endangered. Several specimens of this rare plant were observed in wetlands onsite and offsite.

Existing stresses to terrestrial systems include the presence of the existing Lansing Smith units, logging practices, and prescribed burning. Existing stresses to the marine systems include storm water runoff, pollution from non-point sources, and the thermal discharge of the existing Lansing Smith cooling system.

## **AIR RESOURCES AND NOISE**

Climate in the site vicinity is characteristic of the upper Gulf Coast with mild winters and summer heat, tempered by breezes off the Gulf of Mexico. Prevailing winds are from the north.

The Smith Unit 3 site is located in an area that has been classified as attainment for all criteria air pollutants, which means the site meets all applicable state and federal air standards. The only major air emissions sources in the area are the Smith Units 1 and 2 and a few industrial facilities around St. Andrew Bay.

Ambient noise at the proposed site is dominated by the day-to-day operations of Smith Units 1 and 2. Noise surveys performed by Gulf indicate noise levels around the property boundary currently fall well below the Bay County noise code.

### **ES.3 PROJECT DESCRIPTION**

The Smith Unit 3 Project will utilize state-of-the-art combined cycle (CC) design concepts and equipment to achieve a high level of efficiency in electrical power production. The Project will employ two General Electric Model PG 7241 (FA) gas turbine units which have a proven operating record around the world. These machines will utilize the latest developments in dry low-nitrogen oxides (NO<sub>x</sub>) combustion technology to achieve low emissions.

Each combustion turbine generator (CTG) will exhaust into a heat recovery steam generator (HRSG), which will produce steam-generated electricity to supplement the CTGs. Typical plant operation is expected to produce 519 MW when operating at full load. When Gulf employs power augmentation, the unit will be capable of generating up to 574 MW.

Cooling of Smith Unit 3 will feature a creative and environmentally sound combination of utilizing existing Smith Units 1 and 2 cooling water discharge with a cooling tower. This means the Project will actually use hot water from the existing cooling system and discharge cooler water back to the existing discharge canal. The average annual water requirements for this cooling system will be approximately 7.5 million gallons per day (MGD) obtained from the existing 274 MGD hot water discharge from Units 1 and 2.

Other uses of the existing Lansing Smith infrastructure will include the uses of ground water from Gulf's onsite wells, use of the existing domestic wastewater treatment pack-

age plant, use of existing electric transmission and road access, and use of the existing potable water system.

Air pollution control equipment utilizing clean-burning natural gas as a fuel and low-NO<sub>x</sub> burners will benefit the air quality in the region. Use of low-sulfur natural gas will limit emissions of particulate matter including particulate matter less than or equal to 10 micrometers diameter. Carbon monoxide and volatile organic compound emissions will be controlled by the use of advanced combustion equipment and operational practices. Dry low-NO<sub>x</sub> combustors and low-NO<sub>x</sub> burner technology will abate NO<sub>x</sub> emissions. Sulfur dioxide and sulfuric acid mist emissions will be controlled by the use of low-sulfur natural gas. Drift eliminators will be employed to limit cooling tower drift to no more than 0.001 percent of the circulating water.

Gulf will require a natural gas supply to the site via a new pipeline lateral. However, Gulf will not own, build, or operate the pipeline. A gas pipeline route will be permitted and licensed separately by the supplier.

No new electric transmission line corridors are required to place Smith Unit 3 into service. A 1,000-foot wire bus connecting Smith Unit 3 to the existing Lansing Smith 230-kilovolt (kV) substation will be constructed across already developed plant property. Smith Unit 3 will require replacement of existing conductors (wires) on approximately 20 miles of existing Gulf 115-kV transmission lines in the Panama City vicinity. However, no new right-of-way, access roads, structures, dredging, or filling will be required for these upgrades. No environmental or land use impacts are anticipated from these upgrades.

#### **ES.4 IMPACTS OF PROJECT CONSTRUCTION**

The Smith Unit 3 Project will be located on a 50.1-acre site with development occurring on 32.7 acres of that total. Construction activities will include clearing, grading, development of storm water ponds, power plant construction, final grading, and landscaping.

No explosives will be used in the construction of the facility. Construction impacts will be reduced by use of existing access roads to the site and the Lansing Smith barging terminal for delivery and offloading heavy equipment. Gulf is also proposing use of benign fly ash from the existing Lansing Smith Plant as a fill substitute to help reduce the volume of fill and corresponding truck traffic to the site. Trash and construction debris will be removed or recycled by a licensed contractor.

Construction impacts to surface water systems (including wetlands) will be minimized by developing a drainage plan to allow postconstruction drainage to match preconstruction drainage. Storm water basins will be used to minimize offsite runoff and sedimentation. Best management practices (BMPs) employed for Smith Units 1 and 2 will be modified to include Smith Unit 3 and to protect potential offsite aquatic resources.

Construction impacts on ground water resources are expected to be short term and minimal. Any site dewatering will include the use of storm water ponds to collect and treat the water before recharge or discharge. Construction will not impact any drinking water supplies or other uses of the Floridan aquifer.

Approximately 15.2 acres of wetlands will be impacted during construction. Gulf is submitting a joint FDEP/U.S. Army Corps of Engineers dredge-and-fill application to quantify these impacts. The application will contain a proposed mitigation plan for these lost resources. The remaining acreage (17.4) will be left as natural, vegetated communities (e.g., pine plantation and wetlands). Construction will have minimal impacts on flora and fauna. No impacts to regional populations of any listed species are expected. The panhandle spiderlily (a state-endangered plant) is proposed to be relocated out of construction areas to nearby undisturbed wetlands.

The socioeconomic impacts are largely beneficial. A maximum construction workforce of 325 people will be required, the great majority coming from the Panama City/Bay County area. An average of 180 employees will be used over the 21-month construction period. Construction payroll is expected to total over \$18.4 million, and the impact of

construction on industrial output in Bay County is estimated to be \$113.5 million. Numerous local contractors and vendors will be utilized.

Although traffic on SR 77 and CR 2300 will increase over the construction period due to construction employees and hauling fill to the site, levels are not expected to exceed existing level of service (LOS) on any access road (primarily SR 77) to the site. Gulf is further reducing traffic impacts by spreading out fill hauling over a longer period than the construction period, and by stockpiling fill at the existing Lansing Smith property. This will dilute the truck trips required per day to and from local borrow pits. Gulf is also proposing use of benign fly ash as an alternative fill material which will be used in combination with imported clean fill. Use of fly ash could reduce truck hauling by over 50 percent.

Existing services (schools, fire, police, medical, etc.) in Bay County and nearby communities are adequate to meet short-term demands of construction.

Noise will be generated during construction which will exceed ambient levels. However, noise will be below Bay County standards at Gulf's property boundary. The nearest residential receptor is nearly 2 miles away and will not be affected by construction noise.

### **ES.5 IMPACTS OF PROJECT OPERATION**

Overall, the Project will be a highly efficient and environmentally clean method of producing electrical power. Two positive benefits will be produced over the existing Lansing Smith Generating Facility. First, the reuse of cooling water discharge will mean no additional surface water requirements for once-through cooling will be needed. With the use of the cooling tower, the net impact of operation of Smith Unit 3 will be no increase in the temperature of the existing discharge and a reduction in the discharge volume. Consequently, the heat rejection rate will be reduced by 1.3 percent which will slightly reduce the thermal impacts on the receiving waters of West Bay.

A second major benefit of Smith Unit 3 operations will be a net reduction in NO<sub>x</sub> emissions from Lansing Smith due to installation of low-NO<sub>x</sub> burner technology and a burner



management system on Smith Unit 1. This results in a significant increase in electrical generating capacity with no increase in NO<sub>x</sub> emissions.

The limited use of ground water for process water needs at the Lansing Smith site including Smith Unit 3 will not adversely affect the surficial aquifer or Floridan aquifer at the site. No impacts to existing water supplies or water wells are expected.

During operations, the storm water management plan and BMPs will protect adjacent areas from any storm water runoff impacts. Solid wastes generated will be disposed offsite by licensed contractors.

The best available control technology and PSD review required for Smith Unit 3 will ensure emissions of air-borne pollutants will be minimized. The Project will not cause or contribute to any violation of ambient air quality standards or PSD increments. Secondary air impacts will be negligible. Types and concentrations of air pollutants will not adversely affect soil or vegetation.

No significant ecological effects are anticipated from plant operation. The plant will not affect regional plant and wildlife populations.

Noise impacts will be minimal and confined to the near-plant limits. Noise levels are calculated to be well below Bay County standards.

Existing infrastructure and facilities in Bay County will be sufficient to handle the relatively small increase in operational workforce (29). This workforce will most likely reside locally, but impacts to roads, schools, police, fire, and medical services will be negligible.

Socioeconomic benefits of the Project will be positive. In addition to providing additional inexpensive and reliable electricity to rate payers in Florida, the Project will generate approximately \$1.5 million in additional payroll to Bay County residents. Much of this money will be spent on goods and services. Additionally, Gulf expects to contract \$1.8

million per year to local suppliers of maintenance services/supplies. Traffic generated by the 29 employees will be insignificant on SR 77 and CR 2300. Existing LOSs will not be impacted on area roadways.

## **ES.6 ALTERNATIVES**

The site selected for Smith Unit 3 was driven by the need to be in or close to Panama City and the objective to minimize environmental impacts by locating near existing power plant infrastructure. Smith Unit 3 accomplishes these needs.

The extensive technology and project alternatives analysis performed by Gulf showed that a CC unit located at Gulf's Lansing Smith site using natural gas fuel was the best and lowest cost alternative.

Location at the existing Smith Generating site maximizes use of existing power plant infrastructure (cooling discharge canal, wastewater, potable water, electric transmission, and roads). The site was located on Gulf's property at Lansing Smith to best utilize these infrastructure requirements and minimize onsite environmental impacts. The proposed location, while impacting some wetlands, will avoid wetland impacts associated with longer, interconnecting facility corridors if the site were further from the existing facilities on available Smith property. Moving the site elsewhere would also have the potential to fragment natural communities and wildlife habitat onsite.

## **ES.7 CONCLUSIONS**

In summary, the Project will provide needed low-cost electrical power for Gulf Power rate payers, while minimizing the potential impacts of power generation. The Project will comply with all applicable land use and environmental regulations. The Project should be approved by the Siting Board because it meets pressing local and state needs for electrical power in an environmentally sound manner.

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