

**Robert L. McGee, Jr.**  
Regulatory & Pricing Manager

One Energy Place  
Pensacola, Florida 32520-0780

Tel 850.444.6530  
Fax 850.444.6026  
RLMCGEE@southernco.com



April 1, 2015

Ms. Carlotta Stauffer, Commission Clerk  
Florida Public Service Commission  
2540 Shumard Oak Boulevard  
Tallahassee FL 32399-0870

Re: 2015 Ten Year Site Plan

Dear Ms. Stauffer:

Attached for electronic filing is Gulf Power Company's 2015 Ten Year Site Plan filed pursuant to FPSC Rule No. 25-22.071.

Sincerely,

A handwritten signature in cursive script that reads "Robert L. McGee, Jr.".

Robert L. McGee, Jr.  
Regulatory and Pricing Manager

md

Attachments

cc: Florida Public Service Commission  
Carlotta Stauffer, Office of the Commission Clerk (5 copies)  
Beggs & Lane  
Jeffrey A. Stone, Esq.

# **TEN YEAR SITE PLAN 2015-2024**

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

**APRIL 2015**





# **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, 2015**



## TABLE OF CONTENTS

	<u>Page</u>
<b>EXECUTIVE SUMMARY</b>	1
<b><u>CHAPTER I DESCRIPTION OF EXISTING FACILITIES</u></b>	
<b>Description of Existing Facilities</b>	4
Schedule 1 Existing Generating Facilities	6
System Map	8
<b><u>CHAPTER II FORECAST OF ELECTRIC POWER DEMAND AND ENERGY CONSUMPTION</u></b>	
<b>Forecasting Methodology</b>	
Overview	9
I. Assumptions	10
II. Customer Forecast	13
III. Energy Sales Forecast	14
IV. Peak Demand Forecast	17
V. Data Sources	18
VI. Conservation Programs	19
VII. Small Power Production/ Renewable Energy	29
Schedule 2.1 History and Forecast of Energy Consumption and Number of Customers by Customer Class	30
Schedule 2.2 History and Forecast of Energy Consumption and Number of Customers by Customer Class	31

	<u>Page</u>	
Schedule 2.3	History and Forecast of Energy Consumption and Number of Customers by Customer Class	32
Schedule 3.1	History and Forecast of Summer Peak Demand	33
Schedule 3.2	History and Forecast of Winter Peak Demand	34
Schedule 3.3	History and Forecast of Annual Net Energy for Load	35
Schedule 4	Previous Year Actual and Two-Year Forecast of Peak Demand and Net Energy for Load by Month	36
Schedule 5	Fuel Requirements	37
Schedule 6.1	Energy Sources - GWH	38
Schedule 6.2	Energy Sources - % of NEL	39
 <b><u>CHAPTER III PLANNING ASSUMPTIONS AND PROCESSES</u></b>		
	<b>Integrated Resource Planning Process</b>	40
	Transmission Planning Process	44
	<b>Fuel Price Forecast Process</b>	46
	Southern (SES) Generic Fuel Forecast	47
	Coal Price Forecast	48
	Natural Gas Price Forecast	50
	Natural Gas Availability	52
	<b>Strategic Issues</b>	54

	<u>Page</u>
<b>Environmental Compliance</b>	56
<b>Availability of System Interchange</b>	67
<b>Off-System Sales</b>	67
<b><u>CHAPTER IV FORECAST OF FACILITIES REQUIREMENTS</u></b>	
<b>Capacity Resource Alternatives</b>	68
<b>Renewable Resources</b>	70
Schedule 6.3 Renewable Energy Sources	74
<b>Preferred and Potential Sites for Capacity Additions</b>	75
Schedule 7.1 Forecast of Capacity, Demand, and Scheduled Maintenance at Time of Summer Peak	90
Schedule 7.2 Forecast of Capacity, Demand, and Scheduled Maintenance at Time of Winter Peak	91
Schedule 8 Planned and Prospective Generating Facility Additions and Changes	92
Schedule 9 Status Report and Specifications of Proposed Generating Facilities	94
Schedule 10 Status Report and Specifications of Directly Associated Transmission Lines	96



This page is intentionally blank.

# **GULF POWER COMPANY**

## **TEN-YEAR SITE PLAN**

### **Executive Summary**

The Gulf Power Company (Gulf) 2015 Ten-Year Site Plan 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. The revision designated the FPSC as the state agency responsible for the oversight of the Ten-Year Site Plan (TYSP). Gulf's 2015 TYSP is being filed in compliance with the applicable FPSC rules.

Included in Gulf's 2015 TYSP is the documentation of assumptions used for Gulf's load forecast, fuel forecasts, the planning processes, existing resources, and future capacity needs and resources. The resource planning process utilized by Gulf to determine its future capacity needs is coordinated within the Southern electric system Integrated Resource Planning (SES IRP) process. Gulf participates in the IRP process along with other Southern electric system retail operating companies, Alabama Power Company, Georgia Power Company, and Mississippi Power Company, (collectively, the "Southern electric system" or SES), and it shares in a number of benefits gained from planning in conjunction with a large system such as the SES. These benefits include the economic sharing of SES generating reserves, the ability to install large, efficient generating units, and reduced requirements for operating reserves.

The capacity resource needs set forth in the SES IRP are driven by the demand forecast that includes the load reduction effects of projected demand-

side measures that are embedded into the forecast prior to entering the generation mix process. The generation mix process uses Strategist® (which utilizes PROVIEW™) to screen the available technologies in order to produce a listing of preferred capacity resources from which to select the most cost-effective plan for the system. The resulting SES resource needs are then allocated among the operating companies based on reserve requirements, and each company then determines the resources that will best meet its capacity and reliability needs.

During the 2015 TYSP cycle, Gulf's 885 MW Purchased Power Agreement (PPA) with Shell Energy North America (Shell PPA) will provide firm capacity and energy to serve customers from an existing gas-fired combined cycle generating unit located in Alabama. This PPA resource has been and will continue to be a valuable resource that will serve customers on a firm basis until it expires on May 24, 2023.

In addition to the Shell PPA, Gulf has executed energy purchase agreements with providers of renewable energy generated by municipal solid waste (MSW), solar, and wind facilities. The MSW agreement was approved by the FPSC on December 19, 2014 and provides for the purchase of energy for a 3 year period from the existing waste-to-energy facility located in Bay County, Florida. On January 22, 2015, Gulf filed a petition with the FPSC requesting approval of three solar energy purchase agreements that provide energy produced by solar facilities located in Northwest Florida. These agreements each have a term of 25 years. On February 11, 2015, Gulf filed a petition with the FPSC for approval of a wind energy purchase agreement that has a term of

20 years. The above mentioned renewable energy purchase agreements are discussed in more detail in the Renewable Resources section of this TYSP.

Gulf has finalized plans for each of its coal-fired generating units in order to comply with emission standards required by the Environmental Protection Agency's (EPA) final Mercury and Air Toxics Standards (MATS) rule. Gulf has determined that transmission upgrades are the best MATS compliance option for Plant Crist. For the Plant Daniel coal units, the best options to meet MATS emission limits include installing scrubbers, bromine injection, and activated carbon injection. After extensive evaluation of various options for Plant Smith and Plant Scholz coal-fired units' compliance with MATS, Gulf has determined that it is in its customers' best interests to retire the coal-fired units at the two plants. Therefore, after many years of valuable service to Gulf's customers, the coal-fired units at Plant Scholz will be retired in April 2015, and the coal-fired units at Plant Smith will be retired in March 2016.

Gulf's diverse fleet of existing coal, natural gas, oil, and renewable generating units that remain in-service after the coal-fired units at Plant Smith and Plant Scholz are retired, combined with the Shell PPA capacity, will enable Gulf to meet its reserve margin requirements until June 2023 of the 2015 TYSP cycle. Because Gulf's peak demand and energy loads for the 2015-2024 planning cycle are forecasted to be lower than the loads discussed in Gulf's previous TYSP, Gulf's current analysis shows that its next planned resource need will be in 2023. This next resource need is for combustion turbine capacity (CT). Therefore, Gulf is currently planning to add this peaking capacity by June 2023 following the expiration of the 885 MW Shell PPA in May 2023.

This page is intentionally blank.

# CHAPTER I

## DESCRIPTION OF EXISTING FACILITIES

This page is intentionally blank.

## DESCRIPTION OF EXISTING FACILITIES

Gulf owns and operates generating facilities at five sites in Northwest Florida (Plants Crist, Smith, Scholz, Pea Ridge, and Perdido). Gulf also owns a 50% undivided ownership interest in Unit 1 and Unit 2 at Mississippi Power Company's Daniel Electric Generating Facility. Gulf has a 25% ownership in Unit 3 at Georgia Power Company's Scherer Electric Generating Facility which is completely dedicated to wholesale power sales contracts. Currently, Gulf's fleet of generating units consists of eleven fossil steam units, one combined cycle unit, four combustion turbines, and two internal combustion engine units fueled by landfill gas. Schedule 1 shows 924 MW of steam generation located at the Crist Electric Generating Facility near Pensacola, Florida. The Lansing Smith Electric Generating Facility near Panama City, Florida, includes 357 MW of steam generation, 556 MW (summer rating) of combined cycle generation, and 32 MW (summer rating) of combustion turbine facilities. The Scholz Electric Generating Facility, near Sneads, Florida, consists of 92 MW of steam generation. Gulf's Pea Ridge Facility, in Pace, Florida, consists of three combustion turbines associated with an existing customer's cogeneration facility, which adds 12 MW (summer rating) to Gulf's existing capacity. The Perdido Landfill Gas-to-Energy Facility in Escambia County, Florida provides 3 MW from two internal combustion generating units.

Including Gulf's ownership interest in the Daniel fossil steam Units 1 and 2 and the Scherer fossil steam Unit 3, Schedule 1, as of December 31, 2014,



shows Gulf's total net summer generating capability to be 2,704 MW and its total net winter generating capability to be 2,743 MW.

The existing Gulf system in Northwest Florida, including major generating plants, substations, and transmission lines, are shown on the system map on page 8 of this TYSP. Data related to Gulf's existing generating facilities is presented on Schedule 1 of this TYSP.

GULF POWER COMPANY

SCHEDULE 1  
EXISTING GENERATING FACILITIES  
AS OF DECEMBER 31, 2014

(1) Plant Name	(2) Unit No.	(3) Location	(4) Unit Type	(5) Fuel Pri	(6) Fuel Alt	(7) Fuel Transp Pri	(8) Fuel Transp Alt	(9) Alt. Fuel Days Use	(10) Com'l In-Service Mo/Yr	(11) Exptd Retrmt Mo/Yr	(12) Gen Max Nameplate KW	(13) Net Capability Summer MW	(14) Net Capability Winter MW
Crist	4	Escambia County 25/1N/30W	FS	C	NG	WA	PL	1	07/59	12/24	1,135,250	924.0	924.0
	5		FS	C	NG	WA	PL	1	06/61	12/26	93,750	75.0	75.0
	6		FS	C	NG	WA	PL	1	05/70	12/35	93,750	75.0	75.0
	7		FS	C	--	--	--	--	--	08/73	12/38	369,750	299.0
Lansing Smith		Bay County 36/2S/15W											
	1		FS	C	--	WA	--	--	06/65	03/16	1,001,500	945.0	981.0
	2		FS	C	--	WA	--	--	06/67	03/16	149,600	162.0	162.0
	3		CC	NG	--	PL	--	--	04/02	12/42	619,650	556.0	584.0
A	CT	LO	--	TK	--	--	--	05/71	12/27	41,850	32.0	40.0	
Scholz		Jackson County 12/3N/7W											
	1		FS	C	--	RR	WA	--	03/53	04/15	98,000	92.0	92.0
2	FS	C	--	RR	WA	--	--	10/53	04/15	49,000	46.0	46.0	
Daniel (A)		Jackson County, MS 42/5S/6W											
	1		FS	C	HO	RR	TK	--	09/77	12/42	548,250	510.0	510.0
	2		FS	C	HO	RR	TK	--	06/81	12/46	274,125	255.0	255.0
Scherer (A)	3	Monroe County, GA	FS	C	--	RR	--	--	01/87	12/52	274,125	255.0	255.0
Pea Ridge		Santa Rosa County 15/1N/29W											
	1		CT	NG	--	PL	--	--	05/98	12/18	14,250	12.0	15.0
	2		CT	NG	--	PL	--	--	05/98	12/18	4,750	4.0	5.0
3	CT	NG	--	PL	--	--	05/98	12/18	4,750	4.0	5.0		

**SCHEDULE 1**  
**EXISTING GENERATING FACILITIES**  
**AS OF DECEMBER 31, 2014**

(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 Retrmt Mo/Yr	Gen Max Nameplate KW	Net Capability	
				Pri	Alt	Pri	Alt					Summer MW	Winter MW
Perdido LFG		Escambia County											
	1		IC	LFG	--	PL	--	--	10/10	12/29	1,600.0	1.5	1.5
	2		IC	LFG	--	PL	--	--	10/10	12/29	1,600.0	1.5	1.5
											Total System	2,704	2,743

Abbreviations:

Type and Fuel

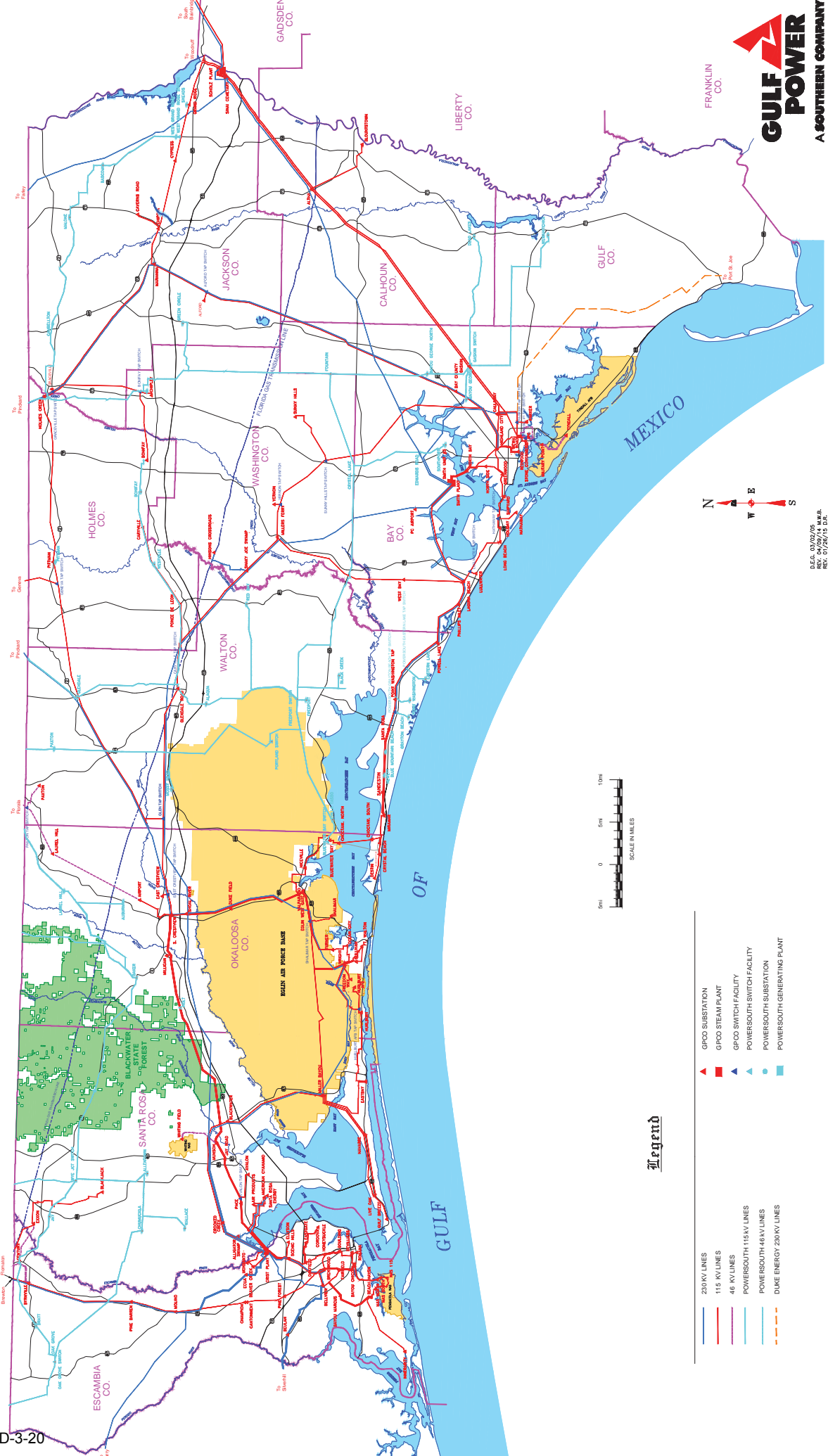
- FS - Fossil Steam
- CT - Combustion Turbine
- CC - Combined Cycle
- NG - Natural Gas
- C - Coal
- LO - Light Oil
- HO - Heavy Oil
- IC - Internal Combustion
- LFG - Landfill Gas

Fuel Transportation

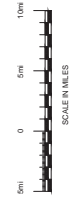
- PL - Pipeline
- WA - Water
- TK - Truck
- RR - Railroad

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

# GULF POWER COMPANY TRANSMISSION & SUBSTATION SYSTEM



- Legend**
- 230 KV LINES
  - 115 KV LINES
  - 46 KV LINES
  - POWERSOUTH 115KV LINES
  - POWERSOUTH 48KV LINES
  - DUKE ENERGY 230KV LINES
  - GPOD SUBSTATION
  - GPOD STEAM PLANT
  - GPOD SWITCH FACILITY
  - POWERSOUTH SWITCH FACILITY
  - POWERSOUTH SUBSTATION
  - POWERSOUTH GENERATING PLANT



D.E.P. 03/20/05  
 REV. 01/27/15 E.D.R.  
 GPOD Transmission System.dwg





## CHAPTER II

### FORECAST OF ELECTRIC POWER DEMAND AND ENERGY CONSUMPTION

This page is intentionally blank.

**GULF POWER COMPANY  
FORECASTING METHODOLOGY  
OVERVIEW**

Gulf views the forecasting effort as a dynamic process requiring ongoing activities to yield results that 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 customer service 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 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.

The Forecasting section of Gulf's Accounting, Finance, and Treasury 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**

The economic assumptions used to develop Gulf's forecast of customers, energy sales and peak demand for this Ten Year Site Plan were derived from the May 2014 economic projection provided by Moody's Analytics.

The May 2014 economic projection assumed the Federal Reserve would begin normalizing monetary policy by mid-2015. U.S. real GDP was expected to grow 3.9% in 2015 and 3.1% in 2016. Total U.S. employment was projected to return to pre-recession levels by mid-2014, with continued growth through 2015 being dependent on housing market recovery.

### **B. NORTHWEST FLORIDA ECONOMIC OUTLOOK**

Gulf's retail service area is generally represented by three Metropolitan Statistical Areas (MSAs): Pensacola-Ferry Pass-Brent, Crestview-Fort Walton Beach-Destin, and Panama City-Lynn Haven-Panama City Beach. Moody's projected that the Northwest Florida economy would continue recovering from the recession and return to a healthy economy by late 2015 or early 2016.

Northwest Florida's real disposable personal income increased 2.2% in 2014, compared to the 2010 to 2013 average annual growth rate of 0.7%. Real disposable personal income was projected to grow over the next five years at an average annual rate of 3.5%. The region's employment bottomed out in 2010, but since then has shown positive year over year growth with an increase of 1.3% in 2014. Employment was projected to grow at an average annual rate of

2.3% over the next five years. Single family housing starts have shown modest improvements since 2009 and were projected to return to more normal levels by 2016. Population growth in Northwest Florida was 0.7% in 2014 and was projected to return to normal growth rates by 2016, growing at an average annual rate of 1.5% for the next five years. Over the long-run, Northwest Florida was projected to see accelerated growth during the recovery from the recession and return back to normal long-term growth rates by 2018.

Gulf's projections incorporate electric price assumptions derived from the 2014 Gulf Power Official Long-Range Forecast. Fuel price projections for gas and oil are developed by Southern Company Services (SCS) Fuel Procurement staff with input from outside consultants. The following tables provide a 5-year summary of assumptions associated with Gulf's forecast:

**TABLE 1**

**NATIONAL ECONOMIC SUMMARY  
AVERAGE ANNUAL GROWTH RATES  
(2014-2019)**

GDP Growth	2.6 %
Interest Rate (30 Year AAA Bonds)	5.3 %
Inflation	2.8 %

**TABLE 2**

**AREA DEMOGRAPHIC SUMMARY  
(2014-2019)**

Population Gain	63,000
Average Annual Net Migration	2,600
Average Annual Population Growth	1.5 %
Average Annual Labor Force Growth	2.0 %

## **II. CUSTOMER FORECAST**

### **A. RESIDENTIAL, COMMERCIAL, AND INDUSTRIAL CUSTOMER FORECAST**

The short-term forecasts of residential, commercial and industrial non-lighting customers were based primarily on projections prepared by Gulf's field Marketing Managers with the assistance of their field employees. These projections reflect recent historical trends in net customer gains as well as anticipated effects of changes in the local economy, the real estate market, planned construction projects, and factors affecting population such as military personnel movements and changes in local industrial production. After collecting initial input from field managers, forecasters reviewed the one-year-out customer projections by rate schedule, checking for consistency with historical trends, consistency with economic outlooks, and consistency across the three MSAs in Gulf's service area. Forecasters then supplied field managers with draft second-year-out customer projections based on number of households from Moody's Analytics, which the field managers reviewed and modified as necessary. Gulf utilized growth in the number of households to extend the short-term residential forecast of customers to the long-term horizon. Beyond the short-term period, commercial customers were forecast as a function of residential customers, reflecting the growth of commercial services to meet the needs of new residents. Long-term projections of industrial customers are based on input from Gulf's field Marketing Managers.

## **B. OUTDOOR LIGHTING CUSTOMER FORECAST**

Gulf projected the number of outdoor lighting customers by rate and class based on historical growth rates and input from Gulf's lighting team to gain insight into future trends.

## **III. ENERGY SALES FORECAST**

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

The short-term non-lighting residential energy sales forecast was developed utilizing a multiple linear regression analysis. Monthly class energy use per customer per billing day was estimated based on historical data, normal weather, real disposable income per household, and projected price of electricity. The model output was then multiplied by the projected number of non-lighting residential customers and projected billing days by month to expand to the total residential class.

Long-term projections of residential sales were developed utilizing the LoadMAP-R model, an electric utility end-use forecasting tool. LoadMAP-R forecasts end-use or appliance-specific residential energy demand using a variety of demographic, housing, economic, energy, and weather information. Gulf utilized growth rates from the LoadMAP-R projection to extend the short-term residential sales forecast to the long-term horizon.

The residential sales forecast was adjusted to reflect the expected impacts of conservation programs approved in Gulf's 2010 DSM plan. Additional

information on the residential conservation programs and program features are provided in the Conservation Programs section of this document. The residential sales forecast was also adjusted to reflect the anticipated impact of the introduction of electric vehicles to the market.

## **B. COMMERCIAL SALES FORECAST**

The short-term non-lighting commercial energy sales forecast was also developed utilizing multiple linear regression analyses. Monthly energy use per customer per billing day for small commercial customers (rates GS and Flat-GS) was estimated based on historical data, normal weather, gross domestic product (GDP) per capita by MSA, and projected price of electricity. Similarly, monthly energy use per customer per billing day for large commercial customers (all other commercial rates) was estimated based on historical data, normal weather, GDP per capita by MSA, and projected price of electricity. These regression model outputs were then multiplied by the projected number of small and large commercial customers, respectively, and projected billing days by month, then summed to the total commercial class.

Long-term projections of commercial sales were developed utilizing the LoadMAP-C model, an electric utility end-use forecasting tool that provides a conceptual framework for organizing commercial market building-type and end-use information. Gulf utilized growth rates from the LoadMAP-C projection to extend the short-term commercial sales forecast to the long-term horizon.

The commercial sales forecast was adjusted to reflect the expected impacts of conservation programs approved in Gulf's 2010 DSM plan. Additional

information on the commercial conservation programs and program features are provided in the Conservation Programs section of this document.

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

The short-term non-lighting industrial energy sales forecast was developed using a combination of on-site surveys of major industrial customers and historical average consumption per customer per billing day. Gulf's largest industrial customers were interviewed by Gulf's industrial account representatives to identify expected load changes due to equipment additions, replacements, or changes in operating schedules and characteristics. The short-term forecast of monthly sales to these major industrial customers was a synthesis of the detailed survey information and historical monthly to annual energy ratios. The forecast of sales to the remaining smaller industrial customers was developed by rate schedule and month using historical averages. The resulting estimates of energy purchases per customer per billing day were multiplied by the expected number of small industrial customers and projected billing days by month to expand to the rate level totals. The sum of the energy sales forecast for the major industrial customers and the remaining smaller industrial customers resulted in the total industrial energy sales forecast. Long-term projections of industrial sales were developed using historical averages.

**D. OUTDOOR LIGHTING SALES FORECAST**

Outdoor lighting energy forecasts were developed by rate and class using historical growth rates and input from Gulf's lighting team to gain insight into future trends.

**E. WHOLESALE ENERGY FORECAST**

The forecast of territorial wholesale energy sales was developed utilizing a multiple linear regression analysis. Monthly wholesale energy purchases per day were estimated based on historical data, normal weather, and real disposable income per household. The model output was then multiplied by the projected number of days by month to expand to the total wholesale energy forecast.

**F. COMPANY USE FORECAST**

The forecast of company energy use was based on recent historical averages by month.

**IV. PEAK DEMAND FORECAST**

The annual system peak demand forecast was prepared using the Peak Demand Model (PDM), developed by Corios and SAS for Southern Company. PDM inputs include historical load shapes and projections of net energy for load, which were based on the forecasted energy sales described previously. PDM spreads the energy projections using the historical load shapes and the results are hourly system load shapes. The monthly forecasted system peak demands



are the single highest hour of demand for each month. Gulf's annual system peak demand typically occurs in the month of July.

The resulting monthly system peak demand projections were adjusted to reflect the anticipated impacts of conservation programs approved in Gulf's 2010 DSM plan. Additional information on the peak demand impacts of Gulf's conservation programs are provided in the Conservation Programs section of this document.

## **V. DATA SOURCES**

Gulf utilized historical customer, energy and revenue data by rate and class, and historical hourly load data coupled with weather information from The National Oceanic and Atmospheric Administration (NOAA) to support the energy and demand models. Individual customer historical data was utilized in developing projections for Gulf's largest industrial customers.

Gulf's models also utilized economic projections provided by Moody's Analytics, a renowned economic services provider. Moody's relies on the Bureau of Labor Statistics for data on employment, unemployment rate and labor force. Moody's obtains personal income and gross domestic product data from the Bureau of Economic Analysis. Moody's obtains population, households and housing starts information from the U.S. Census Bureau.

## VI. CONSERVATION PROGRAMS

Gulf's forecast of energy sales and peak demand reflect the continued impacts of energy efficiency and conservation activities, including the impacts of programs proposed by Gulf in its 2010 DSM plan, which was approved by the Commission in Order No. PSC-11-0114-PAA-EG on February 11, 2011. Gulf's conservation programs were designed to meet the goals established by the Commission in Order No. PSC-09-0855-FOF-EG on December 30, 2009. Following is a brief description of the currently approved programs and tables indicating the historical and projected conservation impacts of Gulf's ongoing conservation efforts.

### A. RESIDENTIAL CONSERVATION

1. Residential Energy Audit and Education – This program is the primary educational program to help customers improve the energy efficiency of their new or existing home through energy conservation advice and information that encourages the implementation of efficiency measures and behaviors resulting in energy and utility bill savings.
2. EnergySelect and EnergySelect LITE - This program is designed to provide the customer with a means of conveniently and automatically controlling and monitoring energy purchases in response to prices that vary during the day and by season in relation to Gulf's cost of producing or purchasing energy. The

*EnergySelect* system includes field units utilizing a communication gateway, major appliance load control relays, and a programmable thermostat, all operating at the customer's home.

3. Community Energy Saver Program - This program is designed to assist low-income families with escalating energy costs through the direct installation of conservation measures at no cost to them. The program will also educate families on energy efficiency techniques and behavioral changes to help control their energy use and reduce their utility operating costs.
4. HVAC Efficiency Improvement Program - This program is designed to increase energy efficiency and improve HVAC cooling system performance for new and existing homes through maintenance, early retirement, upgrades and duct repair.
5. Landlord/Renter Custom Incentive Program - This program will promote the installation of various energy efficiency measures available through other programs including HVAC, insulation, windows, water heating, lighting, appliances, etc. including additional incentives as appropriate to overcome the split-incentive barrier which exists in a landlord/renter situation.
6. Heat Pump Water Heater Program - This program will provide incentives directly to the customer for the installation of high-

efficiency Heat Pump Water Heating equipment for domestic hot water production.

7. Ceiling Insulation Program - This program will provide incentives to encourage customers to install or increase high efficiency insulation in new or existing residential homes to reduce heat loss and heat gain from both conductive and convective means.
8. High Performance Window Program - This program will provide incentives to install high-efficiency windows or window films in existing or new residential homes to reduce solar heat gain which, in turn, leads to reduced HVAC loads and operating costs.
9. Reflective Roof Program - This program will provide incentives to promote the installation of ENERGY STAR qualified cool/reflective roofing products when constructing a new home or replacing the roof on an existing home to decrease the amount of heat transferred through roof assemblies and into vented attic spaces which, in turn, decreases the transfer of heat into the home's conditioned living area.
10. Variable Speed/Flow Pool Pump Program - This program will provide an incentive to encourage the installation of high-efficiency variable speed or variable flow pool pumping and control equipment in both new and existing residential homes to

reduce the energy, demand, and costs associated with swimming pool operation.

11. Self-Install Energy Efficiency Program - This program promotes the purchase and installation of ENERGY STAR rated appliances, lighting and other self-installed energy saving measures for residential customers by focusing on increasing customer awareness of the benefits of energy efficient technologies and products through customer education, retail partnerships, promotional distribution of compact fluorescent light bulbs (CFLs), on-line store, energy audits and seasonal promotional campaigns.
12. Refrigerator Recycling Program – This program is designed to increase customer awareness of the economic and environmental costs associated with running inefficient, older appliances in a household, and to provide eligible customers with free refrigerator and freezer pick-up services in addition to a cash incentive.

**B. COMMERCIAL/INDUSTRIAL CONSERVATION**

1. Commercial/Industrial (C/I) Energy Analysis – This is an interactive program that provides commercial and industrial customers assistance in indentifying energy conservation opportunities. The program is a prime tool for the Gulf Power

Company C/I Energy Specialists to personally introduce a customer to conservation measures, including low or no-cost improvements or new electro-technologies to replace old or inefficient equipment.

2. Commercial HVAC Retrocommissioning Program - This program offers basic retrocommissioning at a reduced cost for qualifying commercial and industrial customers designed to diagnose the performance of the HVAC cooling unit(s) with the support of an independent computerized quality control process and make improvements to the system to bring it to its full efficiency.
3. Commercial Building Efficiency Program - This program is designed as an umbrella efficiency program for existing commercial and industrial customers to increase awareness and customer demand for high-efficiency, energy-saving equipment; increase availability and market penetration of energy efficient equipment; and contribute toward long-term energy savings and peak demand reductions.
4. Occupancy Sensor HVAC Control - The purpose of this program is to promote the installation of occupancy sensors to reduce energy waste in hotel rooms by providing hotel owners the opportunity to automatically control temperature settings when the rooms are unoccupied.

5. High Efficiency Motor Program – The purpose of this program is to reduce demand and energy associated with electric motors by encouraging the replacement of worn out, inefficient motors with high efficiency motors.
6. Food Service Efficiency Program – This program encourages the installation of ENERGY STAR qualified or equivalent energy efficient commercial and industrial food service equipment to reduce energy consumption and demand as well as operating costs for the customer.
7. Commercial/Industrial Custom Incentive - This program is designed to establish the capability and process to offer advanced energy services and energy efficient end-user equipment (including comprehensive audits, design, and construction of energy conservation projects) not offered through other programs to Commercial or Industrial customers.
8. Real Time Pricing (RTP) – The objective of this program, available to large Commercial and Industrial customers of Gulf Power, is to encourage customers to reduce demand on Gulf's system during peak times when the marginal cost of generating or purchasing electricity is at its highest by providing hourly prices on a day-ahead basis.

**C. CONSERVATION RESULTS SUMMARY**

The following tables provide estimates of the reductions in peak demand and net energy for load realized by Gulf's customers as a result of participation in Gulf's conservation programs.



HISTORICAL  
TOTAL CONSERVATION PROGRAMS  
CUMULATIVE ANNUAL REDUCTIONS  
AT GENERATOR

	SUMMER PEAK (KW)	WINTER PEAK (KW)	NET ENERGY FOR LOAD (KWH)
2014	467,634	528,512	1,011,253,000

2015 BUDGET FORECAST  
TOTAL CONSERVATION PROGRAMS  
INCREMENTAL ANNUAL REDUCTIONS  
AT GENERATOR

	SUMMER PEAK (KW)	WINTER PEAK (KW)	NET ENERGY FOR LOAD (KWH)
2015	23,500	20,600	75,300,000
2016	21,900	19,100	71,300,000
2017	22,300	20,000	74,600,000
2018	21,600	19,500	72,100,000
2019	20,500	19,000	68,800,000
2020	20,500	19,000	68,800,000
2021	20,500	19,000	68,800,000
2022	20,500	19,000	68,800,000
2023	20,500	19,000	68,800,000
2024	20,500	19,000	68,800,000

2015 BUDGET FORECAST  
TOTAL CONSERVATION PROGRAMS  
CUMULATIVE ANNUAL REDUCTIONS  
AT GENERATOR

	SUMMER PEAK (KW)	WINTER PEAK (KW)	NET ENERGY FOR LOAD (KWH)
2015	491,134	549,112	1,086,553,000
2016	513,034	568,212	1,157,853,000
2017	535,334	588,212	1,232,453,000
2018	556,934	607,712	1,304,553,000
2019	577,434	626,712	1,373,353,000
2020	597,934	645,712	1,442,153,000
2021	618,434	664,712	1,510,953,000
2022	638,934	683,712	1,579,753,000
2023	659,434	702,712	1,648,553,000
2024	679,934	721,712	1,717,353,000

HISTORICAL  
RESIDENTIAL CONSERVATION  
CUMULATIVE ANNUAL REDUCTIONS  
AT GENERATOR

	SUMMER PEAK (KW)	WINTER PEAK (KW)	NET ENERGY FOR LOAD (KWH)
2014	243,204	356,307	595,472,000

2015 BUDGET FORECAST  
RESIDENTIAL CONSERVATION  
INCREMENTAL ANNUAL REDUCTIONS  
AT GENERATOR

	SUMMER PEAK (KW)	WINTER PEAK (KW)	NET ENERGY FOR LOAD (KWH)
2015	18,900	18,600	63,200,000
2016	17,000	17,000	58,500,000
2017	17,500	17,900	61,800,000
2018	16,700	17,500	59,200,000
2019	16,000	17,100	56,800,000
2020	16,000	17,100	56,800,000
2021	16,000	17,100	56,800,000
2022	16,000	17,100	56,800,000
2023	16,000	17,100	56,800,000
2024	16,000	17,100	56,800,000

2015 BUDGET FORECAST  
RESIDENTIAL CONSERVATION  
CUMULATIVE ANNUAL REDUCTIONS  
AT GENERATOR

	SUMMER PEAK (KW)	WINTER PEAK (KW)	NET ENERGY FOR LOAD (KWH)
2015	262,104	374,907	658,672,000
2016	279,104	391,907	717,172,000
2017	296,604	409,807	778,972,000
2018	313,304	427,307	838,172,000
2019	329,304	444,407	894,972,000
2020	345,304	461,507	951,772,000
2021	361,304	478,607	1,008,572,000
2022	377,304	495,707	1,065,372,000
2023	393,304	512,807	1,122,172,000
2024	409,304	529,907	1,178,972,000

HISTORICAL  
COMMERCIAL/INDUSTRIAL CONSERVATION  
CUMULATIVE ANNUAL REDUCTIONS  
AT GENERATOR

	SUMMER PEAK (KW)	WINTER PEAK (KW)	NET ENERGY FOR LOAD (KWH)
2014	224,430	172,205	415,781,000

2015 BUDGET FORECAST  
COMMERCIAL/INDUSTRIAL CONSERVATION  
INCREMENTAL ANNUAL REDUCTIONS  
AT GENERATOR

	SUMMER PEAK (KW)	WINTER PEAK (KW)	NET ENERGY FOR LOAD (KWH)
2015	4,600	2,000	12,100,000
2016	4,900	2,100	12,800,000
2017	4,800	2,100	12,800,000
2018	4,900	2,000	12,900,000
2019	4,500	1,900	12,000,000
2020	4,500	1,900	12,000,000
2021	4,500	1,900	12,000,000
2022	4,500	1,900	12,000,000
2023	4,500	1,900	12,000,000
2024	4,500	1,900	12,000,000

2015 BUDGET FORECAST  
COMMERCIAL/INDUSTRIAL CONSERVATION  
CUMULATIVE ANNUAL REDUCTIONS  
AT GENERATOR

	SUMMER PEAK (KW)	WINTER PEAK (KW)	NET ENERGY FOR LOAD (KWH)
2015	229,030	174,205	427,881,000
2016	233,930	176,305	440,681,000
2017	238,730	178,405	453,481,000
2018	243,630	180,405	466,381,000
2019	248,130	182,305	478,381,000
2020	252,630	184,205	490,381,000
2021	257,130	186,105	502,381,000
2022	261,630	188,005	514,381,000
2023	266,130	189,905	526,381,000
2024	270,630	191,805	538,381,000

## **VII. SMALL POWER PRODUCTION / RENEWABLE ENERGY**

The current forecasts also consider Gulf's active promotion of customer-sited renewable energy resources. Gulf initiated implementation of four new solar programs in 2011 in compliance with the Commission's Order No. PSC-10-0608-PAA-EG approved on October 4, 2010. The Solar PV program, the Solar Thermal Water Heating program, the Solar for Schools program and the Solar Thermal Water Heating for Low Income Housing program are expected to result in demand and energy reductions that have been incorporated in the conservation estimates provided elsewhere in this document.

Please refer to the Renewable Resources section of this TYSP for additional information concerning Gulf's efforts to promote and develop supply-side renewable energy resources.

This page is intentionally blank.

**GULF POWER COMPANY**

**Schedule 2.1**

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

(1) Year	(2) Population*	(3) Members per Household*	(4) Rural and Residential			(5) Commercial			(7) GWH	(8) Average No. of Customers	(9) Average KWH Consumption Per Customer
			(4) GWH	(5) Average No. of Customers	(6) Average KWH Consumption Per Customer	(7) GWH	(8) Average No. of Customers	(9) Average KWH Consumption Per Customer			
2005	786,860	2.58	5,320	350,404	15,181	3,736	52,916	70,599			
2006	792,610	2.57	5,425	360,930	15,032	3,843	53,479	71,862			
2007	791,860	2.56	5,477	371,213	14,755	3,971	53,791	73,821			
2008	793,380	2.56	5,349	374,709	14,274	3,961	53,810	73,610			
2009	795,620	2.55	5,254	374,010	14,049	3,896	53,414	72,942			
2010	801,190	2.55	5,651	375,847	15,036	3,997	53,349	74,912			
2011	809,340	2.56	5,305	378,157	14,028	3,911	53,409	73,235			
2012	824,940	2.59	5,054	379,897	13,303	3,859	53,706	71,846			
2013	835,790	2.60	5,089	382,599	13,301	3,810	54,261	70,215			
2014	841,340	2.59	5,362	386,765	13,865	3,838	54,749	70,104			
2015	849,190	2.57	5,212	390,481	13,346	3,841	55,111	69,698			
2016	861,260	2.56	5,290	395,866	13,363	3,893	55,577	70,038			
2017	875,260	2.55	5,366	402,127	13,344	3,944	56,099	70,308			
2018	889,810	2.54	5,430	408,494	13,293	3,989	56,630	70,436			
2019	904,390	2.54	5,429	414,346	13,102	4,007	57,117	70,157			
2020	918,740	2.54	5,468	419,757	13,028	4,039	57,568	70,155			
2021	931,890	2.54	5,515	424,548	12,989	4,076	57,966	70,314			
2022	943,960	2.54	5,565	428,697	12,980	4,118	58,312	70,628			
2023	955,430	2.53	5,608	432,481	12,967	4,167	58,626	71,076			
2024	966,440	2.53	5,651	435,895	12,965	4,219	58,910	71,612			
<b>CAAG</b>											
05-14	0.7%	0.1%	0.1%	1.1%	-1.0%	0.3%	0.4%	-0.1%			
14-19	1.5%	-0.4%	0.2%	1.4%	-1.1%	0.9%	0.9%	0.0%			
14-24	1.4%	-0.2%	0.5%	1.2%	-0.7%	0.9%	0.7%	0.2%			

\* Historical and projected figures include Pensacola, Crestview, and Panama City MSAs

**Schedule 2.2**  
History and Forecast of Energy Consumption and  
Number of Customers by Customer Class

(1) Year	(2) GWH	(3) Average No. of Customers	(4) Average KWH Consumption Per Customer	(5)			(6) Street & Highway Lighting GWH	(7) Other Sales to Public Authorities GWH	(8) Total Sales to Ultimate Consumers GWH
				Railroads and Railways GWH	Street & Highway Lighting GWH	Other Sales to Public Authorities GWH			
2005	2,161	295	7,332,898	0	23	0	11,239	11,239	
2006	2,136	294	7,260,626	0	24	0	11,429	11,429	
2007	2,048	303	6,769,670	0	24	0	11,521	11,521	
2008	2,211	291	7,592,204	0	23	0	11,543	11,543	
2009	1,727	280	6,164,567	0	25	0	10,903	10,903	
2010	1,686	275	6,133,961	0	26	0	11,359	11,359	
2011	1,799	273	6,586,591	0	25	0	11,040	11,040	
2012	1,725	267	6,453,071	0	25	0	10,663	10,663	
2013	1,700	258	6,581,320	0	21	0	10,620	10,620	
2014	1,849	258	7,165,343	0	25	0	11,075	11,075	
2015	1,883	266	7,085,572	0	25	0	10,961	10,961	
2016	1,826	269	6,789,132	0	25	0	11,034	11,034	
2017	1,831	269	6,808,078	0	25	0	11,167	11,167	
2018	1,831	269	6,808,078	0	25	0	11,275	11,275	
2019	1,831	269	6,808,078	0	25	0	11,292	11,292	
2020	1,832	269	6,809,578	0	25	0	11,364	11,364	
2021	1,831	269	6,808,078	0	25	0	11,447	11,447	
2022	1,831	269	6,808,078	0	25	0	11,540	11,540	
2023	1,831	269	6,808,078	0	25	0	11,631	11,631	
2024	1,832	269	6,809,578	0	25	0	11,727	11,727	
<b>CAAG</b>									
05-14	-1.7%	-1.5%	-0.3%	0.0%	1.2%	0.0%	-0.2%	-0.2%	
14-19	-0.2%	0.8%	-1.0%	0.0%	-0.1%	0.0%	0.4%	0.4%	
14-24	-0.1%	0.4%	-0.5%	0.0%	-0.1%	0.0%	0.6%	0.6%	

**GULF POWER COMPANY**

**Schedule 2.3**

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

(1) Year	(2) Sales for Resale <u>GWH</u>	(3) Utility Use & Losses <u>GWH</u>	(4) Net Energy for Load <u>GWH</u>	(5) Other Customers ( <u>Average No.</u> )	(6) Total No. of Customers
2005	418	666	12,322	472	404,086
2006	415	743	12,586	482	415,185
2007	417	733	12,671	486	425,793
2008	398	676	12,617	493	429,302
2009	390	682	11,975	502	428,206
2010	409	750	12,518	559	430,030
2011	382	663	12,086	564	432,403
2012	339	597	11,598	572	434,441
2013	330	602	11,552	579	437,698
2014	332	645	12,052	598	442,370
2015	323	628	11,911	601	446,459
2016	331	630	11,995	601	452,313
2017	334	635	12,136	601	459,096
2018	335	640	12,250	601	465,993
2019	337	639	12,269	601	472,333
2020	341	643	12,348	601	478,195
2021	344	648	12,439	601	483,384
2022	349	653	12,541	601	487,879
2023	353	658	12,643	601	491,977
2024	359	663	12,749	601	495,675
<b>CAAG</b>					
05-14	-2.5%	-0.4%	-0.2%	2.7%	1.0%
14-19	0.3%	-0.2%	0.4%	0.1%	1.3%
14-24	0.8%	0.3%	0.6%	0.1%	1.1%

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) Year	(2) Total	(3) Wholesale	(4) Retail	(5) Interruptible	(6) Residential Load Management	(7) Residential Conservation	(8) Comm/Ind Load Management	(9) Comm/Ind Conservation	(10) Net Firm Demand
2005	2,768	94	2,674	0	0	167	0	164	2,436
2006	2,828	93	2,734	0	0	171	0	173	2,483
2007	2,989	99	2,891	0	0	175	0	180	2,634
2008	2,898	91	2,807	0	0	176	0	182	2,541
2009	2,909	92	2,817	0	0	177	0	186	2,546
2010	2,896	88	2,807	0	0	178	0	192	2,525
2011	2,919	89	2,830	0	0	186	0	198	2,535
2012	2,769	76	2,693	0	0	206	0	212	2,351
2013	2,810	74	2,736	0	0	229	0	220	2,362
2014	2,905	75	2,830	0	0	243	0	224	2,437
2015	2,940	68	2,872	0	0	262	0	229	2,449
2016	2,984	69	2,915	0	0	279	0	234	2,471
2017	3,034	70	2,964	0	0	297	0	239	2,499
2018	3,075	70	3,005	0	0	313	0	244	2,518
2019	3,093	71	3,023	0	0	329	0	248	2,516
2020	3,129	71	3,058	0	0	345	0	253	2,531
2021	3,168	72	3,096	0	0	361	0	257	2,550
2022	3,209	73	3,136	0	0	377	0	262	2,570
2023	3,248	74	3,175	0	0	393	0	266	2,589
2024	3,288	74	3,214	0	0	409	0	271	2,608
<b>CAAG</b>									
05-14	0.5%	-2.5%	0.6%	0.0%	0.0%	4.3%	0.0%	3.5%	0.0%
14-19	1.3%	-1.1%	1.3%	0.0%	0.0%	6.2%	0.0%	2.0%	0.6%
14-24	1.2%	0.0%	1.3%	0.0%	0.0%	5.3%	0.0%	1.9%	0.7%

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

**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)
Year	Total	Wholesale	Retail	Interruptible	Residential Load Management	Residential Conservation	Comm/Ind Load Management	Comm/Ind Conservation	Net Firm Demand
04-05	2,518	92	2,426	0	0	250	0	137	2,130
05-06	2,476	94	2,382	0	0	262	0	142	2,072
06-07	2,644	91	2,554	0	0	275	0	146	2,224
07-08	2,793	97	2,696	0	0	276	0	147	2,370
08-09	2,757	98	2,659	0	0	287	0	150	2,320
09-10	2,996	107	2,890	0	0	289	0	154	2,553
10-11	2,950	99	2,851	0	0	297	0	157	2,495
11-12	2,621	89	2,532	0	0	317	0	165	2,139
12-13	2,275	70	2,205	0	0	341	0	169	1,766
13-14	3,223	90	3,132	0	0	356	0	172	2,694
14-15	2,695	70	2,625	0	0	375	0	174	2,146
15-16	2,680	72	2,608	0	0	392	0	176	2,112
16-17	2,738	73	2,665	0	0	410	0	178	2,150
17-18	2,779	73	2,705	0	0	427	0	180	2,171
18-19	2,797	74	2,723	0	0	444	0	182	2,170
19-20	2,826	74	2,751	0	0	462	0	184	2,180
20-21	2,862	75	2,787	0	0	479	0	186	2,197
21-22	2,898	76	2,822	0	0	496	0	188	2,214
22-23	2,933	77	2,856	0	0	513	0	190	2,230
23-24	2,968	78	2,890	0	0	530	0	192	2,246

**CAAG**

05-14	2.8%	-0.2%	2.9%	0.0%	0.0%	4.0%	0.0%	2.5%	2.6%
14-19	-2.8%	-3.8%	-2.8%	0.0%	0.0%	4.5%	0.0%	1.1%	-4.2%
14-24	-0.8%	-2.7%	-0.8%	0.0%	0.0%	4.0%	0.0%	1.1%	-1.8%

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

**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)
Year	Total	Residential Conservation	Comm/Ind Conservation	Retail	Wholesale	Utility Use & Losses	Net Energy for Load	Load Factor %
2005	12,998	357	319	11,239	418	666	12,322	57.7%
2006	13,273	365	322	11,429	415	743	12,586	57.9%
2007	13,373	375	327	11,521	417	733	12,671	54.9%
2008	13,326	378	331	11,543	398	676	12,617	56.5%
2009	12,704	384	345	10,903	390	682	11,975	53.7%
2010	13,256	388	350	11,359	409	750	12,518	56.0%
2011	12,864	417	361	11,040	382	663	12,086	54.4%
2012	12,453	482	374	10,663	339	597	11,598	56.2%
2013	12,502	551	399	10,620	330	602	11,552	55.8%
2014	13,064	595	416	11,075	332	645	12,052	51.1%
2015	12,998	659	428	10,961	323	628	11,911	55.5%
2016	13,152	717	441	11,034	331	630	11,995	55.3%
2017	13,368	779	453	11,167	334	635	12,136	55.4%
2018	13,555	838	466	11,275	335	640	12,250	55.5%
2019	13,642	895	478	11,292	337	639	12,269	55.7%
2020	13,790	952	490	11,364	341	643	12,348	55.5%
2021	13,950	1,009	502	11,447	344	648	12,439	55.7%
2022	14,121	1,065	514	11,540	349	653	12,541	55.7%
2023	14,291	1,122	526	11,631	353	658	12,643	55.7%
2024	14,466	1,179	538	11,727	359	663	12,749	55.7%
<b>CAAG</b>								
05-14	0.1%	5.9%	3.0%	-0.2%	-2.5%	-0.4%	-0.2%	-1.4%
14-19	0.9%	8.5%	2.8%	0.4%	0.3%	-0.2%	0.4%	1.7%
14-24	1.0%	7.1%	2.6%	0.6%	0.8%	0.3%	0.6%	0.9%

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)
		2014 Actual			2015 Forecast			
Month	Peak Demand MW	Peak Demand MW	NEL GWH	Peak Demand MW	Peak Demand MW	NEL GWH	Peak Demand MW	NEL GWH
January	2,694	2,111	1,156	2,111	2,112	942	2,112	944
February	2,117	1,893	806	1,893	2,000	787	2,000	829
March	1,728	1,623	833	1,623	1,618	815	1,618	811
April	1,782	1,590	817	1,590	1,611	812	1,611	820
May	2,035	2,200	1,000	2,200	2,223	1,023	2,223	1,033
June	2,388	2,350	1,169	2,350	2,372	1,182	2,372	1,193
July	2,437	2,449	1,250	2,449	2,471	1,284	2,471	1,296
August	2,433	2,418	1,298	2,418	2,443	1,272	2,443	1,285
September	2,279	2,221	1,095	2,221	2,246	1,116	2,246	1,128
October	1,949	1,992	928	1,992	2,029	913	2,029	926
November	2,146	1,599	848	1,599	1,586	830	1,586	812
December	1,663	1,980	853	1,980	1,968	935	1,968	919

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

Gulf Power Company

Schedule 5

Fuel Requirements

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	
		Fuel Requirements		Actual	Actual	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
			Units	2013	2014	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
(1)	Nuclear		Trillion BTU	None	None	None	None	None	None	None	None	None	None	None	None	None
(2)	Coal		1000 TON	2,799	3,678	3,678	2,568	2,818	3,311	3,452	3,700	3,909	3,937	4,181	4,461	4,571
(3)	Residual	Total	1000 BBL	0	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	0
(5)		CC	1000 BBL	None	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	None
(7)		Diesel	1000 BBL	None	None	None	None	None	None	None	None	None	None	None	None	None
(8)	Distillate	Total	1000 BBL	18	25	25	10	12	8	9	8	8	8	9	8	9
(9)		Steam	1000 BBL	16	17	17	10	12	8	9	8	8	8	8	8	6
(10)		CC	1000 BBL	None	None	None	None	None	None	None	None	None	None	None	None	None
(11)		CT	1000 BBL	2	8	8	0	0	0	0	0	0	0	1	2	3
(12)		Diesel	1000 BBL	None	None	None	None	None	None	None	None	None	None	None	None	None
(13)	Natural Gas	Total	1000 MCF	63,160	58,285	58,285	60,549	65,586	67,131	63,468	53,028	49,049	51,766	49,486	29,915	24,714
(14)		Steam	1000 MCF	681	514	514	0	0	0	0	0	0	0	0	0	0
(15)		CC	1000 MCF	61,211	57,464	57,464	59,353	64,387	65,935	62,272	53,028	49,049	51,766	49,486	27,306	16,414
(16)		CT	1000 MCF	1,268	307	307	1,196	1,199	1,196	1,196	0	0	0	0	2,609	8,300
(17)	Other <sup>(A)</sup>		1000 MCF	254	259	259	240	310	360	360	360	360	360	360	360	360

(A) Perdido Units' landfill gas burn included in Other

**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 2013	Actual 2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
(1)	Annual Firm Interchange		GWH	(3,174)	(3,760)	(2,674)	(3,864)	(5,125)	(4,824)	(4,007)	(3,887)	(4,253)	(4,406)	(2,123)	(1,296)
(2)	Nuclear		GWH	None	None	None	None	None	None	None	None	None	None	None	None
(3)	Coal		GWH	5,601	7,394	5,896	6,467	7,628	7,984	8,610	9,124	9,206	9,778	10,454	10,714
(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	0.6	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.8	1.1
(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	0.6	0.9	0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.8	1.1
(13)		Diesel	GWH	None	None	None	None	None	None	None	None	None	None	None	None
(14)	Natural Gas	Total	GWH	8,834	8,207	8,476	9,167	9,417	8,896	7,469	6,911	7,283	6,962	4,101	3,116
(15)		Steam	GWH	52	24	0	0	0	0	0	0	0	0	0	0
(16)		CC	GWH	8,622	8,107	8,395	9,085	9,336	8,815	7,469	6,911	7,283	6,962	3,850	2,319
(17)		CT	GWH	160	76	81	82	81	81	0	0	0	0	251	797
(18)	NUGs		GWH	290	210	213	225	216	194	197	200	203	207	210	214
(19)	Net Energy for Load		GWH	11,552	12,052	11,911	11,995	12,136	12,250	12,269	12,348	12,439	12,541	12,643	12,749

NOTE: Line (18) includes energy received from Non-Renewable and Renewable resources. See Schedule 6.3 for details on Gulf's renewable resources.

**GULF POWER COMPANY**

Schedule 6.2  
Energy Sources

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
	Energy Sources	Units	Actual 2013	Actual 2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	
(1)	Annual Firm Interchange	%	(27.47)	(31.20)	(22.45)	(32.21)	(42.23)	(39.38)	(32.66)	(31.48)	(34.19)	(35.13)	(16.79)	(10.17)	
(2)	Nuclear	%	None	None	None	None	None	None	None	None	None	None	None	None	
(3)	Coal	%	48.49	61.35	49.50	53.91	62.85	65.18	70.18	73.89	74.01	77.97	82.69	84.04	
(4)	Residual	%	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)	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	
(6)	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	
(7)	CC	%	None	None	None	None	None	None	None	None	None	None	None	None	
(8)	CT	%	None	None	None	None	None	None	None	None	None	None	None	None	
(9)	Diesel	%	None	None	None	None	None	None	None	None	None	None	None	None	
(10)	Distillate	%	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	
(11)	Total	%	None	None	None	None	None	None	None	None	None	None	None	None	
(12)	Steam	%	None	None	None	None	None	None	None	None	None	None	None	None	
(13)	CC	%	None	None	None	None	None	None	None	None	None	None	None	None	
(14)	CT	%	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	
(15)	Diesel	%	None	None	None	None	None	None	None	None	None	None	None	None	
(16)	Natural Gas	%	76.47	68.10	71.16	76.42	77.60	72.62	60.88	55.97	58.55	55.51	32.44	24.44	
(17)	Total	%	0.45	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
(18)	Steam	%	74.64	67.27	70.48	75.74	76.93	71.96	60.88	55.97	58.55	55.51	30.45	18.19	
(19)	CC	%	1.39	0.63	0.68	0.68	0.67	0.66	0.00	0.00	0.00	0.00	1.99	6.25	
(20)	CT	%	2.51	1.74	1.79	1.88	1.78	1.58	1.61	1.62	1.63	1.65	1.66	1.68	
(21)	Diesel	%	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	
(22)	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	

NOTE: Line (18) based on energy received from Non-Renewable and Renewable resources. See Schedule 6.3 for details on Gulf's renewable resources.

## CHAPTER III

### PLANNING ASSUMPTIONS AND PROCESSES



This page is intentionally blank.

## THE INTEGRATED RESOURCE PLANNING PROCESS

As previously mentioned, Gulf participates in the SES IRP process. This process begins with a determination of the various escalation and inflation rates that will impact the financial condition of the SES. Experts from within and outside the SES meet to discuss current and historical economic trends and conditions, as well as future expected economic conditions which would impact the SES's business over the next twenty to twenty-five years. Information gathered from these discussions serves as a basis for developing the general inflation and escalation assumptions that will affect fuel costs, construction costs, labor rates and variable O&M.

In addition to the work on the economic assumptions, there are a number of activities that are conducted in parallel with one another in the IRP process. These activities include energy and demand forecasting, fuel price forecasting, generation technology screening analysis and evaluation, engineering cost estimation, evaluation of dispatchable and non-dispatchable demand-side management (DSM) programs, and other planning activities.

The SES operating companies remain active in offering customers various DSM programs which result in modified consumption patterns. The impact of such DSM programs on system loads is assessed and included as an input into the SES IRP process. DSM programs which are identified as cost-effective alternatives to the supply-side resources are integrated with the supply-side options to produce a final integrated resource plan. Gulf's forecast of energy

sales and peak demand reflects the continued impacts of its conservation programs. The DSM programs' costs and benefits are regularly updated in order to facilitate cost-effectiveness evaluations against the selected supply-side technologies from the IRP process.

A number of existing generating units on the SES are also evaluated with respect to their anticipated compliance costs. These evaluations are extremely important in order to maximize the benefit of existing investment from both a capital and an operations and maintenance expense perspective.

Additionally, the market for potential power purchases is analyzed in order to determine its cost-effectiveness in comparison to the available supply-side and demand-side options for meeting any identified capacity need. Power purchases are evaluated on both a near-term and long-term basis as a possible means of meeting the system's demand requirements. These power purchases can be procured from utility sources as well as from non-utility generators which utilize conventional or renewable fuels.

The supply side of the IRP process focuses on the SES as a whole, which has as its planning criterion a 15% reserve margin target for the year 2018 and beyond. This reserve margin is the optimum economic point at which the system can meet its energy and demand requirements after accounting for load forecast error, abnormal weather conditions, and unit forced outage conditions. It also balances the cost of adding additional generation with the cost of not serving all the energy requirements of the customer.

Once the above mentioned planning assumptions are determined, generating unit technologies are screened to determine the most acceptable candidates, the necessary planning inputs are defined and the generation mix analysis is initiated. The main optimization tool used in the generation mix analysis is the Strategist® model. Strategist® employs a generation mix optimization module named PROVIEW™. The supply-side technology candidates are input into Strategist® in specific MW block sizes for selection over the planning horizon for the entire SES. Although this model uses many data inputs and assumptions in the process of optimizing system generation additions, the key assumptions are fuel forecasts, load forecasts, DSM programs, candidate units, reserve margin requirements, cost of capital, and escalation rates.

PROVIEW™ uses a dynamic programming technique to develop the optimum resource mix. This technique allows PROVIEW™ to evaluate many combinations of generation additions that satisfy the reserve margin constraint for every year. Annual system operating costs are simulated and are added to the construction costs required to build each combination of resource additions. An indicative schedule of least cost resource additions is developed by evaluating each year sequentially and comparing the results of each combination. PROVIEW™ produces a number of different combinations over the planning horizon, evaluating both the capital cost components for unit additions as well as the operating and maintenance cost of existing and future supply-side additions. The program produces a report which ranks all of the

different combinations with respect to the total net present value cost over the entire twenty-year planning horizon. The leading combinations from the program are then evaluated for reasonableness and validity. It is important to note that supply-side additions from the PROVIEW™ program output are for the entire SES and are reflective of the various technology candidates selected.

After the SES 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, the system base supply-side plan is complete. The result is an individual operating company supply plan that fits within the SES planning criteria.

Finally, a financial analysis of the plan is performed 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 management.

In summary, the SES IRP 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, the SES is continually looking at a broad range of alternatives in order to meet the SES's projected demand and energy requirements. The SES updates its IRP each year to account for the changes in the demand and energy forecast, as well as the other major assumptions previously mentioned in this section. A mix study is again performed to ensure that the IRP is the most

economical and cost-effective plan. The resulting product of the SES IRP process is an integrated indicative plan which meets the needs of the SES's customers in a cost-effective and reliable manner.

## **TRANSMISSION PLANNING PROCESS**

The transmission system is not studied as a part of the 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 conversion to distribution voltages under a number of system conditions known as contingencies. The results of the IRP are factored into transmission studies in order to determine the impacts of various generation site options upon the transmission system. The transmission system is studied under different contingencies for various load levels to ensure 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 in order 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 a solution is chosen to correct the problem, a capital budget expenditure request is prepared for executive approval.

In prior years, Gulf has entered into a series of purchased power agreements to meet its needs, and it will continue this practice in the future when

economically attractive opportunities are available. In order to ensure that adequate transmission facilities are in place to handle these purchased power transactions when Gulf has the need for additional capacity, it has been and will continue to be Gulf's practice to perform a transmission analysis of viable purchased power proposals to determine any transmission constraints. Gulf will formulate a plan, if needed, to resolve any transmission issues in a reasonable, cost-effective manner prior to proceeding with negotiations for purchased power agreements.

## **FUEL PRICE FORECAST PROCESS**

### **FUEL PRICE FORECASTS**

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

The delivered price of any fuel consists of a variety of components. The main components are commodity price and transportation cost. Coal commodity domestic prices are forecast on either a mine-mouth basis or free on board (FOB) barge basis, while import coals are forecast on an FOB ship basis at the port of import. Natural gas prices are forecast at the Henry Hub, Louisiana benchmark delivery point. Because mine-mouth coal prices vary by source, sulfur content, and Btu level, SES prepares commodity price forecasts for ten different coal classifications used on the SES. Because natural gas does not possess the same quality variations as coal, SES prepares a single commodity price forecast for gas at Henry Hub, and applies a basis differential between Henry Hub and the various pipelines serving SES plants. Two price forecasts are developed for oil, based on grade of oil, sulfur, and heat content.

Transportation costs, to be used in the delivered price forecast, are developed for potential sites when modeling generic unit additions in the 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.

## **SES GENERIC FUEL FORECAST**

SES develops short-term (current year +2) and long-term (year 4 and beyond) fuel price forecasts for coal, oil, and natural gas which extend through the Company's 10-year planning horizon. The short-term forecasts are developed by SCS Fuel Services for use in the system's fuel budgeting process and marginal pricing dispatch procedures.

The long-term forecasts are developed in the spring of each year for use in system planning activities. The long-term forecasts are governed by the SCS Executive Planning Coordination Team (Executive PCT). Charles River & Associates (CRA) is the modeling vendor used by the system to develop the long-term forecasts. This process is a collaborative effort between CRA and members of the cross-functional Planning Coordination Team (PCT) with final approval from the Executive PCT and/or Southern Company Management Council.

Fuel market assumptions, developed in collaboration between CRA and SES, are integrated into CRA's model to develop commodity forecast prices. Transportation prices are developed by the SES and are combined with the CRA commodity prices to produce the total delivered prices used in the IRP. These prices are developed for existing units and potential green field/brown field sites for future expansion.

## **COAL PRICE FORECAST**

In 2014, coal production in the United States reached 994 million short tons, an increase from the 984 million short tons for 2013. The Central Appalachian region in the U.S. experienced an 8% decrease in production. The Interior region (Illinois Basin) of the U.S. recorded nearly a 4% increase in production. The Western Bituminous U.S. region coal production ( Colorado and Utah) was relatively flat from the prior year but the sub-bituminous region (Powder River Basin) saw a production gain of about 2.5% from 2013. It is estimated that Colombian production in 2014 was up approximately 1.8% over 2013.

Overall global demand for coal continues to decrease. The major importers continue to be China and India but both are importing less than they did in the last few years. The primary supply continues to be from Indonesia and Australia. The European demand remains flat with its primary supply coming from Colombia with the U.S. serving as its secondary source when an imbalance occurs.

From an overall global market perspective the coal market is oversupplied leading to lower prices than experienced over the last couple of years. In the U.S., this decrease continues to be driven by the abundance of low priced natural gas which has led to the displacement of coal generation as well as decreases in coal exports.

Central Appalachian and Colombian coal prices have been relatively flat to declining since the beginning of 2014. As mentioned in the preceding paragraph, this softness in the market is attributable to the continued downturn in both U.S.

and European coal demand. Coal production from the Central Appalachian coal region continues to decline as a result of Central Appalachian mines' inability to compete with lower price coal basins, in particular the Illinois Basin.

Illinois Basin coal production has seen steady increases, in large part, as a result of the widespread installation of scrubbers at eastern power generation stations. In the longer term, productivity in the Illinois Basin is expected to improve as less productive mines are replaced by long wall operations.

Historically, Powder River Basin (PRB) regional coal production has grown at 5 percent per year over sustained periods, but recently production levels have decreased. Although in 2014 production was up around 2.5 percent from 2013, production in 2014 was down about 7 percent per year when compared to the 2010-2012 period. It is likely the production levels in 2014 would have been higher without the significant rail transportation disruptions which impacted coal movements out of the basin. Production costs have increased slightly as mining moves from East to West across the basin and deeper reserves are accessed. Increased overburden and distance to rail load outs have put upward pressure on costs, but the recent decrease in fuel oil prices will provide some cost relief. Overall, the economics of surface mining in this region remain favorable. Demand for Western Bituminous coal is expected to remain flat or decline as several generators in Colorado that currently consume this coal have announced that they will cease burning coal by 2015. The quality of the coal that can be exported from this region will have a major impact on its long term production levels. As for the movements into the southeast, the high transportation costs make Western Bituminous coals less economic to this region.

## NATURAL GAS PRICE FORECAST

Gas Daily Henry Hub prices averaged \$4.32/MMBtu in 2014. That was a \$.60 increase over the average of \$3.72/MMBtu for 2013. The extreme weather resulting from the Polar Vortex at the end of 2013 and into 2014 supported prices to record highs in the first quarter of the year. January averaged \$4.59/MMBtu and March averaged \$4.77/MMBtu. With an average monthly price of \$5.86/MMBtu, the February Gas Daily prices resulted in the highest monthly average price in 2014. This monthly average is recorded as the highest since January 2010. Entering the second quarter, prices retreated a bit. Both April and May averaged at \$4.61/MMBtu and \$4.56/MMBtu respectively. Gas prices averaged slightly higher in June to settle the month at \$4.57/MMBtu. The strong pricing environment in the first and second quarters helped support robust shale gas production. When temperatures moderated entering the third quarter, resulting in lower demand, prices fell significantly to average \$4.04/MMBtu in July and \$3.87/MMBtu August. Nationally natural gas consumption for power generation fell 400,000 thousand cubic feet (Mcf) per day below summer 2013 levels during April – October. Closing out the mild summer, a few strong trading days brought the monthly average up slightly to close September at \$3.90/MMBtu. The last quarter of 2014 experienced a seesaw effect in market pricing with October averaging \$3.78/MMBtu, November averaging higher at \$4.08/MMBtu, and December averaging \$3.39/MMBtu, the lowest monthly average for the year.

After a prolonged and severe 2013-14 winter season, natural gas storage levels fell sharply in early 2014, registering an 11 year low of 822 billion cubic feet (Bcf) at the end of March. Low demand resulting from the mild summer as well as substantial increases in shale gas production, estimated to have been 3.5 Bcf per day greater than in the summer of 2013, led to high levels of injections during the summer months. The industry refilled 2.75 trillion cubic feet (Tcf) of storage from April through October of last year, surpassing the previous record of 2.55 Tcf set after the winter of 2003.

The 2014-15 winter heating season began with colder than average temperatures in November. Inventory levels began the 2014 withdrawal season at 3.57 Tcf, 238 Bcf (6.2%) less than the previous year, and a 261 Bcf (6.8%) deficit to the five year average. For the week ending November 21, 2014, inventory levels fell by 162 Bcf, tying the largest weekly November withdrawal on record. Since then, smaller-than-average withdrawals for most of this winter have brought stocks back above year-ago levels and closer to five year average levels. By the end of January 2015, withdrawals from storage for the previous four weeks saw a dramatic increase in the first half of the month followed by an equally dramatic decrease by the end of the month. Withdrawals increased by 105 Bcf to a total of 236 Bcf for the week ending January 9, 2015 and fell by 122 Bcf to a total withdrawal of 94 Bcf for the week ending January 23, 2015. The U.S. Energy Information Administration (EIA) announced on February 5, 2015, working gas in storage was 2.4 Tcf as of January 30, 2015. Stocks ended the week 468 Bcf (23.9%) above year ago levels and 29 Bcf (1.2%) below the five year average. Industry analysts are currently predicting that storage levels will

surpass the five year average by the end of February and be about 1.7 Tcf at the end of the heating season in March. Mild winter weather, combined with high gas production will result in a quick recovery of gas storage inventories for the winter of 2015 and bearish pricing into 2015 and 2016. With the support of the colder temperatures in November 2014, Henry Hub prices rose back over \$4/MMBtu at the beginning of the winter season. In recent weeks, prices have dropped to the lowest levels in more than two years. On December 23, 2014, day ahead Henry Hub spot prices fell to \$2.97/MMBtu. Since the end of December, prices have hovered around the \$3 mark, with the Henry Hub averaging \$2.87/MMBtu on January 31, 2015 and \$2.99/MMBtu for the entire month. Henry Hub prices began February \$0.20 lower and fell to \$2.56/MMBtu on February 7, its lowest level since June 2012. The Henry Hub average as of February 10, 2015 was \$2.63/MMBtu.

The EIA expects the monthly average spot prices to remain less than \$4/MMBtu until the fourth quarter of 2016. The projected Henry Hub price averages are \$3.44/MMBtu in 2015 and \$3.86/MMBtu in 2016.

## **NATURAL GAS AVAILABILITY**

LNG imports continued their decline in 2014 because higher prices in Europe and Asia are more attractive to LNG exporters compared to the relatively low prices in the United States. LNG sendout across the Northeast grew during the 2014-15 winter season, increasing 300 million cubic feet (MMcf) per day year over year in January 2015. This uptick in sendout helped to mitigate the decline

in Canadian imports this winter season. The EIA projects that gross LNG exports will average 0.8 Bcf/day into 2016.

U.S. natural gas production is poised to reach a new record for a fifth year as shale gas drillers boost efficiency. These drilling efficiencies have led to more wells being drilled with fewer rigs. A large well backlog of drilled but uncompleted wells in the Marcellus shale region will support sustained production growth in 2015. U.S. natural gas production averaged an estimated 69.3 Bcf per day in 2014. The EIA reports that U.S. natural gas production is expected to increase to 72.26 Bcf per day in 2015 and to 73.94 Bcf per day in 2016. The continued growth in domestic production should provide more than a sufficient supply of natural gas to meet operating needs.

## STRATEGIC ISSUES

PPAs have provided supply-side diversity and the flexibility for Gulf to adapt its future generation expansion plans to changing market conditions without negative financial impacts to the Company and its customers. Gulf's Shell PPA provides 885 MW of firm capacity and energy from an existing gas-fired combined cycle (CC) generating unit that is interconnected with the SES in Alabama. With the Shell PPA in place, Gulf will have sufficient capacity to meet its load service and reliability requirements until June 2023. This strategy of supplementing Gulf's development of long-term capacity resources with shorter-term power purchases has proven to be effective over the years, and Gulf will continue to follow this strategy in the future when appropriate and cost-effective to do so.

Another important strategic advantage for Gulf is its association with the SES as it relates to integrated planning and operations. Drawing on the planning resources of Southern Company Services to perform coordinated planning and having the capacity resources of the SES available to Gulf through the Intercompany Interchange Contract's (IIC) reserve sharing mechanism in times when Gulf is temporarily short of reserves are key benefits that Gulf and its customers realize through its association with the SES. In addition, the SES's generation organization actively pursues firm energy market products at prices that can lead to significant savings to the SES and its customers.



Over the next decade, Gulf will face significant challenges in developing a generation expansion plan that serves not only its customers' load growth but its existing base need for capacity. As discussed in the Environmental Compliance section of this TYSP, compliance with additional environmental regulations has led to retirements of several Gulf coal units. The addition of new gas-fired units will be needed to replace this capacity. Gulf continues to monitor the development of state and national policy in the area of air, land, and water regulations. Gulf will consider options for compliance with the resulting regulations that fulfill its obligation to serve the energy needs of its retail customers in Northwest Florida with reliable and reasonably priced electricity. With Gulf's Shell PPA that provides firm gas-fired generating capacity from June 2015 through May 2023 of the current planning cycle, Gulf is well positioned to meet current and future load requirements as proposed state and federal environmental compliance standards are finalized.

## ENVIRONMENTAL COMPLIANCE

Gulf has developed and routinely updates its environmental compliance strategy to serve as a road map for a reasonable, 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. The focus of the strategy updates is centered on compliance with the acid rain requirements and other significant clean air requirements, as well as new land and water requirements. This approach is an absolute necessity in maintaining the flexibility to match a dynamic regulatory environment with the variety of available compliance options.

Gulf will continue to take all necessary actions to fully comply with all environmental laws and regulations as they apply to the operation of its existing generation facilities and the installation of new generation. The following is a summary of each major area of existing and emerging environmental regulations and Gulf's actions taken to comply with these regulations.

### **Existing Environmental Regulations**

#### **Clean Air Act Amendments of 1990**

In 1990, Congress passed major revisions to the Clean Air Act requiring existing coal-fired generating plants to substantially reduce air emissions of sulfur dioxide (SO<sub>2</sub>) and nitrogen oxides (NO<sub>x</sub>). Gulf's compliance actions for SO<sub>2</sub> have included fuel switching to lower sulfur coals coupled with the use of banked emission allowances and the acquisition of additional allowances for future year compliance. Also, Gulf completed installation and began operating

flue gas de-sulfurization equipment on Plant Crist Units 4 through 7 in December 2009 which is now achieving significant reductions of SO<sub>2</sub> emissions at these coal-fired units. In addition to reducing SO<sub>2</sub> emissions, Gulf has installed low NO<sub>x</sub> burners and additional post-combustion NO<sub>x</sub> controls on all but two of its coal-fired units. The Company utilizes a system-wide NO<sub>x</sub> emissions averaging plan to meet the requirements of the Act.

### **Air Quality Standards for Ozone**

In 1997, the EPA announced a stringent new eight-hour National Ambient Air Quality Standard (NAAQS) for ozone based on an eight-hour average. In 2002, Gulf entered into an agreement with the Florida Department of Environmental Protection (FDEP) to reduce NO<sub>x</sub> emissions at Plant Crist in order to help ensure that the new ozone standard is attained in the Pensacola area. Gulf installed Selective Catalytic Reduction (SCR) controls on Crist Unit 7 in May 2005. In addition to the SCR control on Unit 7, the Company installed Selective Non-Catalytic Reduction Controls (SNCR) and over-fire air on Crist Unit 6 in February 2006 and SNCR controls on Crist Unit 4 and Unit 5 in April 2006. These controls have achieved the overall plant-wide NO<sub>x</sub> emissions average of 0.20 lbs/mmbtu as outlined in the FDEP Agreement. Gulf also retired Crist Unit 1 in March 2003 and Crist Units 2 and 3 in May 2006. The Crist 6 SNCR was replaced with SCR technology in April 2012 in order to further reduce NO<sub>x</sub> emissions.

In 2008, the EPA issued new rules establishing a more stringent eight-hour ozone NAAQS, which it began to implement in 2011. On December 17, 2014, the EPA published a proposed rule to further reduce the current eight-hour

ozone standard. The EPA is required by federal court order to complete this rulemaking by October 1, 2015. Finalization of a lower eight-hour ozone standard could result in the designation of new non-attainment areas in Northwest Florida.

### **Air Quality Standards for Fine Particulate Matter**

The EPA regulates fine particulate matter concentrations on an annual and 24-hour average basis. Attainment with the 1997 and 2006 particulate matter NAAQS has been achieved in all geographical areas served by the Company. In 2012, the EPA issued a final rule that increases the stringency of the annual fine particulate matter standard. The EPA promulgated final designations for the 2012 annual standard on December 18, 2014, and no new non-attainment areas were designated within the Company's service area. The EPA has, however, deferred designation decisions for certain areas in Florida, so future non-attainment designations in these areas are possible.

### **Air Quality Standards for SO<sub>2</sub> and NO<sub>2</sub>**

On December 8, 2009, the EPA proposed revisions to the NAAQS for SO<sub>2</sub>. These revisions, which include the establishment of a new one-hour standard, became effective in August 2010. No areas within the Company's service area have been designated as non-attainment under this rule. However, the EPA may designate additional areas as non-attainment in the future. Implementation of the revised SO<sub>2</sub> NAAQS could result in additional required reductions in SO<sub>2</sub> emissions and increased compliance and operation costs.

Revisions to the NAAQS for Nitrogen Dioxide (NO<sub>2</sub>), which established a new one-hour standard, became effective in April 2010. Although none of the

geographical areas served by the Company were designated as non-attainment for the NO<sub>2</sub> standard, based on current ambient air quality monitoring data, the new NO<sub>2</sub> NAAQS could result in additional compliance and operational costs for units that require new source permitting.

### **Clean Air Interstate Rule**

The EPA issued its final Clean Air Interstate Rule (CAIR) in March 2005 which called for phased reductions in SO<sub>2</sub> and NO<sub>x</sub> emissions from power plants in 28 eastern states. In 2008, the U.S. Court of Appeals for the District of Columbia Circuit issued decisions invalidating certain aspects of CAIR, but left CAIR compliance requirements in place while the EPA developed a revised rule. In 2011, the EPA promulgated the Cross State Air Pollution Rule (CSAPR) to replace CAIR effective January 1, 2012. Like the CAIR, the CSAPR was intended to address interstate emissions of SO<sub>2</sub> and NO<sub>x</sub> that interfere with downwind states' ability to meet or maintain national ambient air quality standards for ozone and/or particulate matter. In 2012, the U.S. Court of Appeals for the District of Columbia Circuit vacated CSAPR in its entirety, but on April 29, 2014, the U.S. Supreme Court overturned that decision and remanded the case back to the U.S. Court of Appeals for the District of Columbia Circuit for further proceedings. The U.S. Court of Appeals for the District of Columbia Circuit granted the EPA's motion to lift the stay of the rule, and the first phase of CSAPR took effect on January 1, 2015. The states of Florida and Mississippi are preparing state plans to implement CSAPR, and emissions reductions are being accomplished by operation of emission controls installed for CAIR at the Gulf's coal-fired facilities and/or by the purchase of emission allowances as

needed. Decisions regarding Gulf's CAIR/CSAPR compliance strategy were made jointly with the Clean Air Visibility Rule (CAVR) and CAMR/MATS compliance plans due to co-benefits of proposed controls.

### **Clean Air Visibility Rule**

The CAVR was finalized in July 2005 in order to restore natural visibility conditions in certain areas (primarily national parks and wilderness areas) by 2064. The rule involves the application of Best Available Retrofit Technology (BART) to certain sources built between 1962 and 1977 and any additional emission reductions necessary for each designated area to achieve reasonable progress toward the natural conditions goal by 2018 and for each 10-year planning period thereafter. In 2005, the EPA determined that compliance with the CAIR satisfies BART obligations under CAVR, but, on June 7, 2012, the EPA issued a final rule replacing CAIR with CSAPR as an alternative means of satisfying BART obligations.

Florida submitted a revised State Implementation Plan (SIP) on September 17, 2012. This SIP proposed a series of Electric Generating Unit (EGU)-specific BART and Reasonable Progress determinations which included BART limits for the coal-fired units at Plant Smith and no further controls for Plant Crist. The EPA completed a review of the Florida SIP and published final approval on August 29, 2013 with an effective date of September 30, 2013. On October 15, 2013, environmental groups challenged EPA's approval of Florida's SIP in the U.S. Court of Appeals, Eleventh Circuit. On August 13, 2014, the Sierra Club and the National Parks Conservation Association filed a motion with

the court seeking to voluntarily dismiss their challenge and the 11<sup>th</sup> Circuit granted that motion on September 2, 2014.

The Mississippi Department of Environmental Quality (MDEQ) requested a source-specific BART analyses be submitted by December 15, 2012. The BART analysis for Plant Daniel submitted in December of 2012 demonstrated that the plant already meets “top level control” relative to BART. The EPA had until June 7, 2014 to finalize an approval or disapproval. Following the Supreme Court ruling and the lower court’s reinstatement of CSAPR, neither MDEQ nor EPA have taken any action. Until these issues are resolved, it remains uncertain what additional controls, if any, will ultimately be required for CAVR and BART compliance.

### **Mercury and Air Toxics Standards**

In March 2005, the EPA published the final Clean Air Mercury Rule (CAMR), a cap-and-trade program for the reduction of mercury emissions from coal-fired power plants. In February 2008, however, the U.S. Court of Appeals for the District of Columbia Circuit issued an opinion vacating the federal CAMR, thus eliminating requirements for generating facilities to install mercury controls to meet the CAMR cap and trade emission limits.

In a separate proceeding, the U.S. District Court for the District of Columbia, under a consent decree, required the EPA to develop a Maximum Achievable Control Technologies (MACT) rule that would limit the emission of numerous hazardous air pollutants, including mercury, from power plants. On February 16, 2012, the EPA published the Mercury and Air Toxics Standards (MATS) rule which imposes stringent emissions limits for acid gases, mercury,

and particulate matter on coal- and oil-fired electric utility steam generating units. Compliance for existing sources is required by April 16, 2015 or April 16, 2016 for affected units for which extensions have been granted. On November 25, 2014, the U.S. Supreme Court granted a petition for review of the final MATS rule.

Gulf has evaluated a number of options for its coal-fired generation to comply with emission standards required by the Environmental Protection Agency's (EPA) final Mercury and Air Toxics Standards (MATS) rule and EPA's proposed land and water rules.

As described in Gulf's Air Quality Compliance Program Update that is filed with the FPSC, Gulf has determined that transmission upgrades are the best MATS compliance option for Plant Crist. For the Plant Daniel coal units, the best options to meet MATS limits include installing scrubbers, bromine injection, and activated carbon injection. Both injection systems are projected to be placed in service with the scrubber during fourth quarter of 2015.

In 2013, the Company determined that the most cost-effective MATS compliance option for Plant Scholz was to retire the plant. Evaluation of potential compliance plans for Plant Scholz in response to finalization of the MATS rule indicated that significant capital investments in equipment to reduce emissions and meet the requirements of future environmental regulations would not be cost effective. Therefore, as previously mentioned, Plant Scholz will be retired in April 2015.

In early 2015, the Company finalized its MATS compliance strategy for Plant Smith. The most cost-effective compliance option is to retire the Plant



Smith coal-fired Units 1 and 2 in March of 2016. Plant Smith's remaining units will continue to operate and generate electricity.

## **EMERGING ENVIRONMENTAL REGULATIONS**

### **316(B) Intake Structures**

The EPA published a proposed rule in April 2011 that establishes standards for reducing effects on fish and other aquatic life caused by cooling water intake structures at existing power plants and manufacturing facilities. The rule also addresses cooling water intake structures for new units at existing facilities. EPA's final rule became effective on October 14, 2014. Compliance with the final rule may require changes to existing cooling water intake structures at certain Gulf generating facilities; however, the ultimate effect of this final rule will depend on the results of additional studies and implementation of the rule by regulators based on site-specific factors.

### **Effluent Limitations**

In 2009, the EPA announced plans to revise current effluent limitations guidelines for steam electric power plants. The EPA completed a multi-year study of power plant wastewater discharges and concluded that pollutant discharges from coal-fired power plants will increase significantly in the next few years as new air pollution controls are installed. On June 7, 2013, the EPA published a proposed rule requesting comments on options for addressing revised technology-based limits for certain waste streams from steam electric power plants and best management practices for CCR surface impoundments. The EPA has entered into a consent decree requiring it to finalize revisions to the steam electric effluent guidelines by September 30, 2015. The regulations could

result in the installation of additional water quality controls on certain Company facilities. The impact of the revised effluent guidelines will depend on the specific technology requirements of the final rule and, therefore, cannot be determined at this time.

### **Water Quality and Total Maximum Daily Loads**

In addition to this federal action, State of Florida nutrient water quality standards that limit the amount of nitrogen and phosphorous allowed in state waters are in effect for the State's streams and estuaries. The impact of these standards will depend on further regulatory action in connection with their site-specific implementation through the State of Florida's National Pollutant Discharge Elimination System permitting program and Total Maximum Daily Load restoration program and cannot be determined at this time.

### **Coal Combustion Residuals**

On December 19, 2014, the EPA issued the Disposal of Coal Combustion Residuals from Electric Utilities final rule (CCR Rule), but has not yet published it in the Federal Register. The CCR Rule will regulate the disposal of CCR, including coal ash and gypsum, as non-hazardous solid waste in CCR Units at active generating power plants. The CCR Rule does not mandate closure of CCR Units, but includes minimum criteria for active and inactive surface impoundments containing CCR and liquids, lateral expansions of existing units, and active landfills. Failure to meet the minimum criteria can result in the mandated closure of a CCR Unit. Although the EPA does not require individual states to adopt the final criteria, states have the option to incorporate the federal criteria into their state solid waste management plans in order to regulate CCR in

a manner consistent with federal standards. The EPA's final rule continues to exclude the beneficial use of CCR from regulation. The ultimate impact of the CCR Rule cannot be determined at this time and will depend on the Company's ongoing review of the CCR Rule, the results of initial and ongoing minimum criteria assessments, and the outcome of legal challenges, if any.

### **Global Climate Issues**

In 2014, the EPA published three sets of proposed standards that would limit CO<sub>2</sub> emissions from new, existing, and modified or reconstructed fossil-fuel-fired electric generating units. On January 8, 2014, the EPA published proposed standards for new units, and, on June 18, 2014, the EPA published proposed standards governing existing units, known as the Clean Power Plan, and separate standards governing CO<sub>2</sub> emissions from modified and reconstructed units. The EPA's proposed Clean Power Plan establishes guidelines for states to develop plans to address CO<sub>2</sub> emissions from existing fossil fuel-fired electric generating units. The EPA's proposed guidelines establish state-specific interim and final CO<sub>2</sub> emission rate goals to be achieved between 2020 and 2029 and in 2030 and thereafter. The proposed guidelines and standards could result in operational restrictions and material compliance costs, including capital expenditures, which could affect future unit retirement and replacement decisions. The ultimate financial and operational impact of the proposed Clean Power Plan on the Company cannot be determined at this time and will depend upon numerous known and unknown factors such as: the structure, timing, and content of the EPA's final guidelines; individual state implementation of these guidelines, additional rulemaking activities in response to legal challenges and

related court decisions; the impact of future changes in generation and emissions related technology and costs; the impact of future decisions regarding unit retirement and replacement, including the type and amount of any such replacement capacity; and the time periods over which compliance will be required.

## **Conclusion**

Gulf has made substantial investments in environmental controls to comply with current and pending laws and regulations. Gulf will continue its involvement in the development of strategies to address any future clean air, water, or other requirements in order to minimize the uncertainty related to the scope and cost of compliance. As new initiatives emerge, Gulf will support any proposal that would help it meet environmental goals and objectives in a logical and cost-effective way, provided that the standards are based on sound science and economics which allow for adequate time to comply without compromising the safe, reliable and affordable supply of electricity to Gulf's customers.

## **AVAILABILITY OF SYSTEM INTERCHANGE**

Gulf coordinates its operations with the other operating companies of the SES: Alabama Power Company, Georgia Power Company, Mississippi Power Company, and Southern 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 generating capacity to its load and reserve responsibility. Each SES operating company either buys or sells its temporary deficit or surplus capacity from or to the pool in order to satisfy its reserve responsibility requirement. This is accomplished through the reserve sharing provisions of the SES Intercompany Interchange Contract (IIC) that is reviewed and updated annually.

## **OFF-SYSTEM SALES**

Gulf and other SES operating companies have negotiated the sale of firm capacity and energy from specific generating units to several utilities outside the SES. Gulf sells through three contracts that became effective in June 2010. Two of the contracts end in December 2015 and May 2016, respectively, while the other contract will end in December 2019. Gulf's share of the capacity sales is included in the reserve calculation on Schedules 7.1 and 7.2, while the fuel use and the energy associated with Gulf's portion of these sales are included on Schedules 5 and 6.1 respectively.

## CHAPTER IV

### FORECAST OF FACILITIES REQUIREMENTS

This page is intentionally blank.

## **CAPACITY RESOURCE ALTERNATIVES**

### **POWER PURCHASES**

Gulf's use of purchased power arrangements in previous years has proven to be a successful approach to meeting its reliability needs. As Gulf considers resources that can potentially meet its future need for capacity, longer-term power purchases from the market will be evaluated in order to determine their effect on supply flexibility and reduced commitment risk during periods in which environmental regulations (with considerable economic impacts) and legislative initiatives focusing on generation additions are in various stages of development. Gulf will continue to utilize both short-term and longer-term market purchases in the future to balance its approach to supply side resource development.

### **CAPACITY ADDITIONS**

In conjunction with the SES, Gulf will conduct economic evaluations of its potential supply options in order to determine the most cost-effective means of meeting its future capacity obligations. Gulf will evaluate its internal construction options versus external development of capacity resources in order to determine how to best meet its future capacity obligations. Commercially available generating technologies such as gas combustion turbine, combined cycle, and nuclear will be included in future SES IRP mix studies. In addition, emerging Integrated Gasification Combined Cycle (IGCC) technologies, such as air blown IGCC, and generating facilities with carbon capture technology will be added to the future generation mix studies so that their potential economic and technical



viabilities may be evaluated. The potential benefits of these technologies include greater efficiency and lower environmental emissions.

If subsequent mix studies or market solicitations identify alternative power supply technologies or power purchase options that are more economical or that deliver more desirable results, Gulf will modify its expansion plan to reflect the proposed procurement of these resources. Gulf will continue to review all available capacity resource possibilities in order to serve the energy needs of its retail customers in Northwest Florida with reliable and cost-effective electricity.

## RENEWABLE RESOURCES

Gulf has secured the supply of capacity and/or energy from several renewable facilities. Schedule 6.3 of this TYSP includes the amount of renewable energy that Gulf has produced or purchased from existing renewable resources, and the amounts currently projected to be produced or purchased from existing renewable resources during the 2015-2024 planning cycle.

Gulf will continue to purchase renewable energy produced by the Bay County Resource Recovery Facility through a renegotiated energy purchase agreement that was executed in 2014. This facility, operated and maintained by Engen, LLC, is located in Panama City, Florida and uses municipal solid waste to produce energy for delivery to Gulf on a non-firm basis. Gulf will purchase the energy delivered to its system at fixed prices until the agreement expires in July 2017.

In 2010, Gulf constructed a landfill gas-fired generating facility that is located on leased property adjacent to Escambia County's Perdido Landfill which is just north of Pensacola, Florida. Gulf's Perdido Landfill Gas To Energy Facility consists of two Caterpillar G3520C internal combustion generating units that have a maximum capacity rating of 1.6 MW each. The facility is operated and maintained under contract with LFG Technologies, Inc. Gulf has an agreement with Escambia County, Florida for the purchase of their landfill gas to fuel this Gulf-owned facility. The agreement has a term of 20 years and can be renewed for additional, successive 12 month periods. Initially, the landfill gas supply was

proven sufficient for the operation of two engines. As the gas collection system is expanded, the supply may be sufficient for a third unit.

Gulf Power has recently petitioned the Florida Public Service Commission seeking approval of energy purchase agreements that secure cost-effective renewable energy from three solar facilities (Gulf Coast Solar Center I, Gulf Coast Solar Center II, and Gulf Coast Solar Center III) and one wind project (Kingfisher Wind) to serve Gulf's customers. The solar projects will be constructed at three military bases in Northwest Florida. The Kingfisher Wind project will produce renewable energy from a facility located in Oklahoma.

On October 30, 2014, Gulf Power and Gulf Coast Solar Center I, II, & III, LLC (subsidiaries of HelioSage, LLC) executed three separate agreements that provide for the sale of energy produced by the solar facilities to Gulf. Each solar energy purchase agreement has a term of twenty-five years, contains robust performance security provisions to protect Gulf and its customers in case of contract default, and includes a termination provision for failure to obtain Commission approval of the agreements.

Gulf Coast Solar Center I, LLC will develop, construct, own, operate and maintain a 30 MW solar generation facility on Eglin Air Force Base in Okaloosa County, Florida. Gulf Coast Solar Center II, LLC will develop, construct, own, operate and maintain a 40 MW solar generation facility on the U.S. Navy's Holley Outlying Field in Santa Rosa County, Florida. Gulf Coast Solar Center III, LLC will develop, construct, own, operate and maintain a 50 MW solar generation facility on the U.S. Navy's Saufley Outlying Field in Escambia County, Florida.

Each of the facilities will be directly interconnected to Gulf Power transmission facilities and the HelioSage subsidiaries will be fully responsible for the costs of interconnection. If these solar energy purchase agreements are approved, they are expected to provide multiple benefits to Gulf Power and its customers including, but not limited to, cost savings over the term of the Agreements, fuel diversity, promotion of renewable energy generation in Florida, and assisting the United States Air Force and the United States Navy in achieving their goals for the promotion of renewable generation.

On December 18, 2014, Gulf Power and Morgan Stanley executed an energy purchase agreement with a term of approximately twenty years which is subject to early termination provisions. The Kingfisher Wind project to be constructed as a result of this agreement will be located in Kingfisher and Canadian Counties, Oklahoma. Included in the agreement are performance security provisions designed to protect Gulf and its customers in case of default and a termination provision in case Commission approval is not obtained. Morgan Stanley is obligated to deliver a fixed number of MWhs to Gulf in each hour of the agreement's twenty year term, and Gulf will purchase the energy at prices as specified in the agreement. Morgan Stanley bears all risks and responsibilities associated with delivering energy to the Southern Companies Transmission System. If approved, the agreement is expected to provide multiple benefits to Gulf and its customers including, but not limited to, substantial cost savings over the term of the Agreement, reduced exposure to

future fuel cost increases and volatility, and promotion of new renewable wind energy generation.

Under the solar and wind energy purchase agreements, Gulf retains the flexibility to serve its retail customers with renewable energy by retiring the associated environmental attributes or selling the energy and/or environmental attributes separately or bundled together to third parties. To the extent that Gulf Power opts to sell renewable attributes, the proceeds from such sales would be returned to Gulf's retail customers in the form of credits to the Fuel and Purchased Power Cost Recovery Clause.

Gulf also has access to possible purchases of renewable energy through its Renewable Standard Offer Contract (RSOC) on file with the FPSC. Consistent with state law, Gulf updates its pricing for the RSOC as needed so that a standard offer for the purchase of renewable energy is continually available to developers of renewable resources. Gulf may also negotiate a PPA with a renewable energy supplier.

**GULF POWER COMPANY**

Schedule 6.3  
Renewable Energy Sources

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Renewable Energy Sources (A)	Actuals	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
(1) Renewable Generating Capacity	Perdido MW	3.0	3.0	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
	Perdido MWh	24,674	24,720	32,021	37,080	37,080	37,080	37,184	37,080	37,080	37,080	37,184
	Bay County MWh	39,892	40,690	41,504	24,695	0	0	0	0	0	0	0
	Total MWh	64,566	65,410	73,525	61,775	37,080	37,080	37,184	37,080	37,080	37,080	37,184
	% of Capacity Mix	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
	% of NEL	0.5	0.5	0.6	0.5	0.3	0.3	0.3	0.3	0.3	0.3	0.3
	% of Fuel Mix	0.4	0.4	0.5	0.4	0.2	0.2	0.2	0.2	0.2	0.3	0.3
(2) Self-Service Generation By Renewable Generation	MW	68	68	68	68	68	68	68	68	68	68	68
	MWh (B)	varies	varies	varies	varies	varies	varies	varies	varies	varies	varies	varies

(A) Owned and/or Purchased by Gulf.

(B) Energy produced by these customers' generators varies depending on demand for their product.

This page is intentionally blank.

## PREFERRED AND POTENTIAL SITES FOR CAPACITY ADDITIONS

Gulf's current plan is to either construct new generating facilities or purchase additional generating capacity by June 2023 of the current planning cycle following the expiration of its 885 MW Shell PPA. The Company's next need is anticipated to be for CT capacity occurring in June 2023. Gulf will consider its existing Florida sites at Plant Crist in Escambia County, Plant Smith in Bay County, and Plant Scholz in Jackson County, as well as its greenfield sites in Florida at Shoal River in Walton County, at Caryville in Holmes County, and at North Escambia in Escambia County as potential sites for locating future generating units in Northwest Florida.

Each of these potential sites has unique characteristics that may offer construction and/or operational advantages related to the potential installation of natural gas-fired CTs, which is the next potential type of capacity needed. Please note that the sites discussed herein are not listed in any particular order based on their attributes. Site selection for Gulf's next generating unit addition will be based on existing infrastructure, available acreage and land use, transmission, fuel facilities, environmental factors including evolving ozone standards, and overall project economics. The required environmental and land use information for each potential site is set forth below. The estimated peak water usage for the proposed CTs should be identical for each site mentioned below. Gulf projects that approximately 500 gallons per minute would be required for domestic, irrigation, and other potable and non-potable water uses.



### **Potential Site #1: Plant Crist, Escambia County**

The project site would be located on Gulf's existing Plant Crist property in Escambia County, Florida. If a future project is ultimately located on this property, detailed studies must first be completed to determine the exact size and location of the project site within the plant property's boundaries in order to meet Gulf's needs while ensuring full compliance with local, state, and federal requirements. The plant property, approximately 10 miles north of Pensacola, Florida, can be accessed via county roads from nearby U. S. Highway 29. As shown on Schedule 1, the existing Plant Crist facility consists of 924 MW of steam generation.

#### **U. S. Geological Survey (USGS) Map**

A USGS map showing the general location of the Plant Crist property is found on page 84 of this chapter.

#### **Land Uses and Environmental Features**

The Plant Crist property is dedicated to industrial use. The land adjacent to the property is currently being used for residential, commercial, and industrial purposes. General environmental features of the undeveloped portion of the property include mixed scrub, mixed hardwood/pine forest, and some open grassy areas. This property is located on the Escambia River. There are no unique or significant environmental features on the property that would substantially affect project development.

## **Water Supply Sources**

For industrial processing, cooling, and other water needs, Gulf would likely use a combination of groundwater from on-site wells, available surface water, and reclaimed water sources.

## **Potential Site #2: Plant Smith, Bay County**

The project site would be located on Gulf's existing Plant Smith property in Bay County, Florida. If a future project is ultimately located on this property, detailed studies must first be completed to determine the exact size and location of the project site within the plant property's boundaries in order to meet Gulf's needs while ensuring full compliance with local, state, and federal requirements. The plant property, approximately 10 miles northwest of Panama City, Florida, is located on North Bay and can be accessed via a county road from nearby State Road 77. As shown on Schedule 1, the existing Plant Smith facility consists of 357 MW of steam generation, 556 MW of combined cycle generation, and 32 MW of CT generation.

## **U. S. Geological Survey (USGS) Map**

A USGS map showing the general location of the Plant Smith property is found on page 85 of this chapter.

## **Land Uses and Environmental Features**

The Plant Smith property is dedicated to industrial use. The land adjacent to the property is rural and consists of planted pine plantations. General environmental features of the property include a mixture of upland and

wetland areas. This property is located on North Bay, which connects to St. Andrews Bay. The property has no unique or significant environmental features that would substantially affect project development.

### **Water Supply Sources**

For industrial processing, cooling, and other water needs, Gulf would likely use a combination of groundwater from on-site wells and available surface water.

### **Potential Site #3: Plant Scholz, Jackson County**

The project site would be located on Gulf's existing Plant Scholz property in Jackson County, Florida. If a future project is ultimately located on this property, detailed studies must first be completed to determine the exact size and location of the project site within the plant property's boundaries in order to meet Gulf's needs while insuring full compliance with local, state, and federal requirements. The plant property, approximately 3 miles southeast of Sneads, Florida, is located on the Apalachicola River and can be accessed via a private road from nearby U. S. Highway 90. As shown on Schedule 1, the existing Plant Scholz facility consists of 92 MW of steam generation.

### **U. S. Geological Survey (USGS) Map**

A USGS map showing the general location of the Plant Scholz property is found on page 86 of this chapter.

### **Land Uses and Environmental Features**

The Plant Scholz property is dedicated to industrial use. The land adjacent to the property is primarily rural and in a natural state, but some agricultural development exists. General environmental features of the property include a mixture of hardwood and pine forest areas. This property is located on the Apalachicola River. Because the river is designated as Outstanding Florida Waters, certain criteria must be satisfied to ensure that the river is not significantly degraded. Water withdrawals for any future generation sited here would be limited to volumes currently permitted for Plant Scholz. There are no other unique or significant environmental features that would substantially affect project development.

### **Water Supply Sources**

For industrial processing, cooling, and other water needs, Gulf would likely use a combination of groundwater from on-site wells and available surface water.

### **Potential Site #4: Shoal River Property, Walton County**

The project site would be located on undeveloped Gulf property in Walton County, Florida. If the project is ultimately located on this property, detailed studies will be required to determine the exact size and location of the project site within the property's boundaries in order to meet Gulf's needs, while insuring full compliance with local, state, and federal requirements. This property, also

referred to as the Mossy Head property, is approximately 3 miles northwest of Mossy Head, Florida. It is located on the Shoal River and can be accessed via a county road from nearby U. S. Highway 90.

### **U. S. Geological Survey (USGS) Map**

A USGS map showing the general location of the Shoal River property is found on page 87 of this chapter.

### **Land Uses and Environmental Features**

The Shoal River property is currently dedicated to agricultural and rural residential use. The northern part of the site, some 150 acres, is designated General Agricultural in Walton County's Comprehensive Future Land Use Plan. The land adjacent to the property is rural and in a natural state. General environmental features of the property mainly include wooded upland areas. This property is located on the Shoal River. Because the river is designated as Outstanding Florida Waters, certain criteria must be satisfied to ensure that the river is not significantly degraded. There are no other unique or significant environmental features on the property that would substantially affect project development.

### **Water Supply Sources**

For industrial processing, cooling, and other water needs, Gulf would likely use groundwater from on-site wells.

### **Potential Site #5: Caryville Property, Holmes County**

The project site would be located on undeveloped Gulf property that is bisected by the Holmes/Washington County, Florida line. If the project is ultimately located on this property, detailed studies will be required to determine the exact size and location of the project site within the property's boundaries in order to meet Gulf's needs while ensuring full compliance with local, state, and federal requirements. This property is approximately 1.5 miles northeast of Caryville, Florida. It is located just east of the Choctawhatchee River and can be accessed via County Road 179 from nearby U. S. Highway 90.

#### **U. S. Geological Survey (USGS) Map**

A USGS map showing the general location of the Caryville property is found on page 88 of this chapter.

#### **Land Uses and Environmental Features**

The Caryville property is certified under the Power Plant Siting Act for two 500 MW coal-fired units, but is also suitable for CT generating units. The site is approximately 2,200 acres in size and is adjacent to a major railroad line on its southern boundary. The land surrounding the property is primarily rural and is used mainly for agriculture and timber harvesting. General environmental features of the property mainly include wooded upland areas, with areas of wetlands. There are no other unique or significant environmental features on the property that would substantially affect project development.

### **Water Supply Sources**

For industrial processing, cooling, and other water needs, Gulf would likely use groundwater from on-site wells and available surface water.

### **Potential Site #6: North Escambia Property, Escambia County**

The project site would be located on undeveloped Gulf property that is located in the northern part of Escambia County, Florida, approximately 5 miles southwest of Century, Florida. It is located just west of the Escambia River and can be accessed via County Road 4 from nearby U. S. Highway 29. If the project is ultimately located on this property, detailed studies will be required to determine the exact size and location of the project site within the property's boundaries in order to meet Gulf's needs, while insuring full compliance with local, state, and federal requirements.

### **U. S. Geological Survey (USGS) Map**

A USGS map showing the general location of the North Escambia property is found on page 89 of this chapter.

### **Land Uses and Environmental Features**

The North Escambia property is primarily dedicated to timber harvesting and agricultural use. The property is in close proximity to transmission, natural gas pipelines, railroad, major highways and access to water, all suitable to accommodate new generation needs. The site is currently 2728 acres and includes property located directly on the Escambia River to support the water supply needs for any future generating facility. The

land surrounding the property is primarily rural and is used mainly for timber harvesting and agriculture. General environmental features of the property mainly include wooded upland areas, with areas of hardwood/pine forest and wetlands. There are no other unique or significant environmental features on the property that would substantially affect future project development.

### **Water Supply Sources**

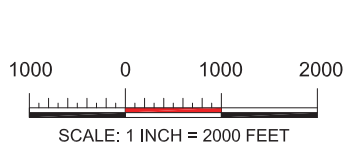
For industrial processing, cooling, and other water needs, Gulf would likely use a combination of groundwater from on-site wells and available surface water.



This page is intentionally blank.

Notes:

1. Grid lines shown are based on the Florida North Zone (#903), NAD83-90 H.A.R.N. State Plane Coordinate System.
2. Taken from U.S.G.S. Quadrangle Maps "Pace,Fl and Cantonment, Fl."



ONE ENERGY PLACE  
PENSACOLA, FL. 32520-0323

# PLANT CRIST





# PLANT SMITH



ONE ENERGY PLACE  
PENSACOLA, FL. 32520-0323



Notes:

1. Grid lines shown are based on the Florida North Zone (#903), NAD83-90 H.A.R.N. State Plane Coordinate System.
2. indicates G.P.Co. Property Lines.
3. Taken from U.S.G.S. Quadrangle Map "Southport".

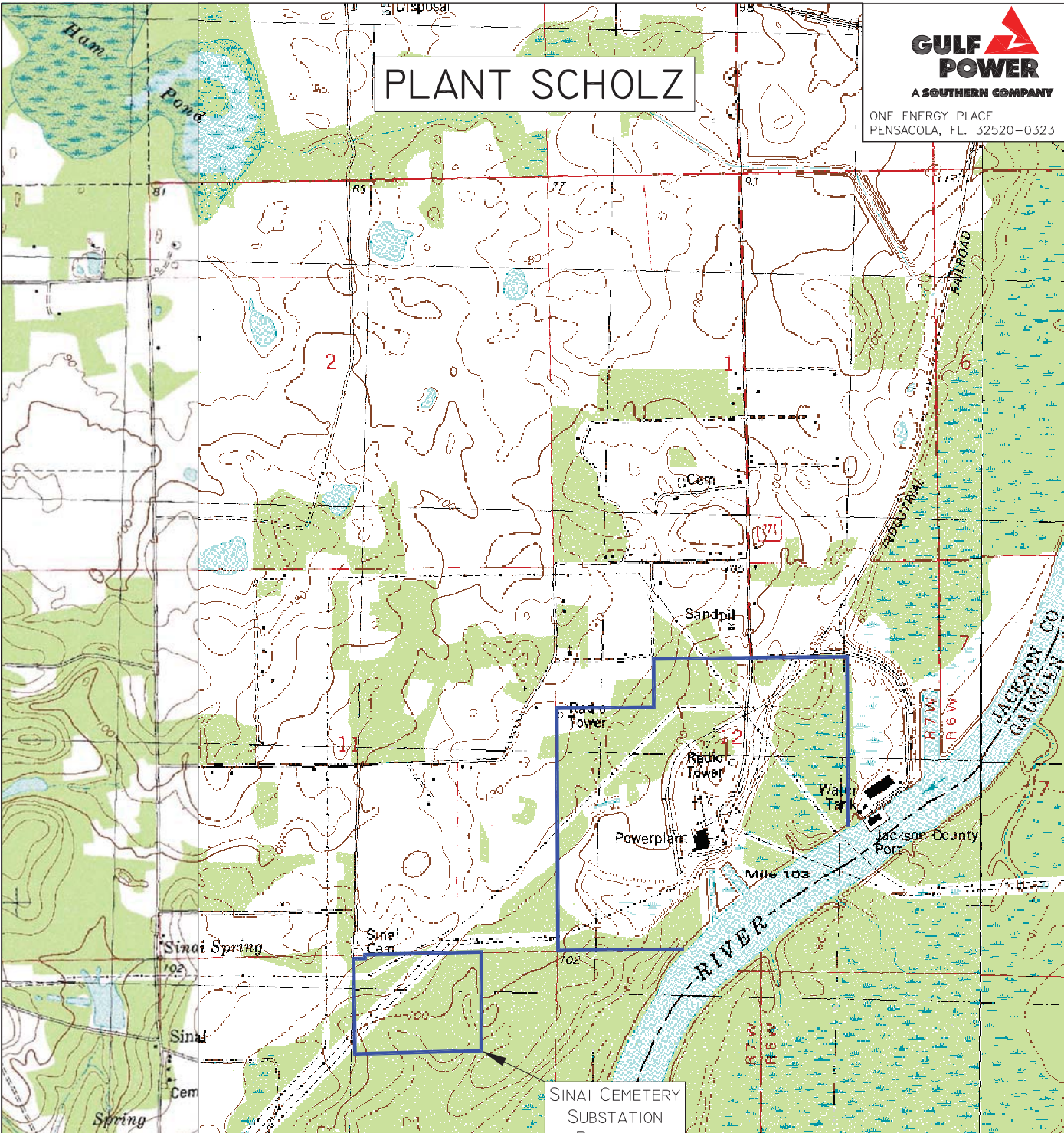
SCALE: 1 INCH = 2000 FEET




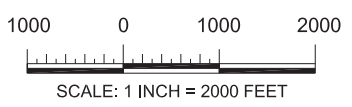
# PLANT SCHOLZ



ONE ENERGY PLACE  
PENSACOLA, FL. 32520-0323



1.  indicates G.P.Co. Property Lines.
2. Taken from U.S.G.S. Quadrangle Map "Sneads, Fl."



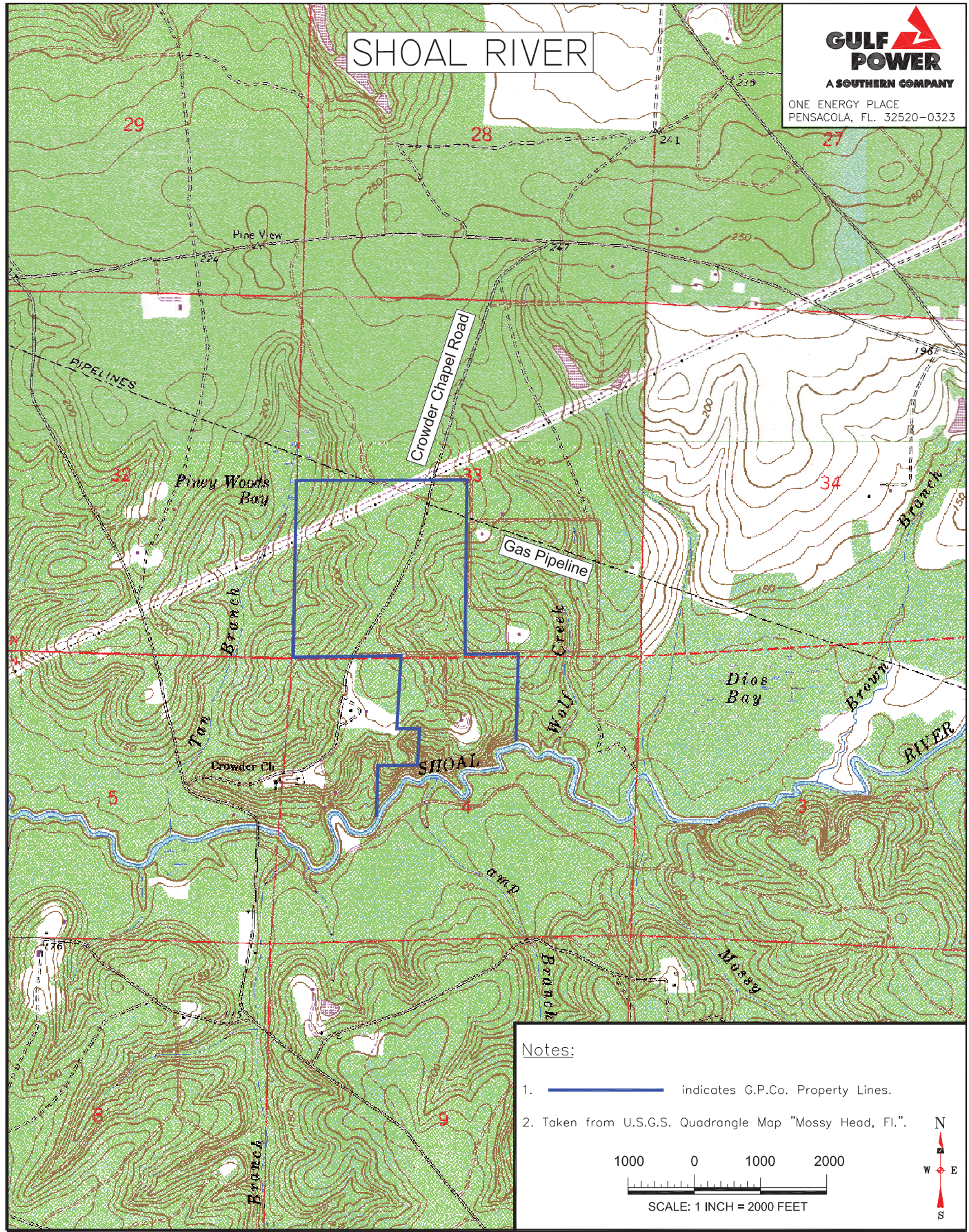
SINAI CEMETERY  
SUBSTATION  
PROPERTY




# SHOAL RIVER

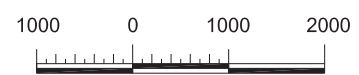


ONE ENERGY PLACE  
PENSACOLA, FL. 32520-0323



### Notes:

- 1.  indicates G.P.Co. Property Lines.
- 2. Taken from U.S.G.S. Quadrangle Map "Mossy Head, Fl."



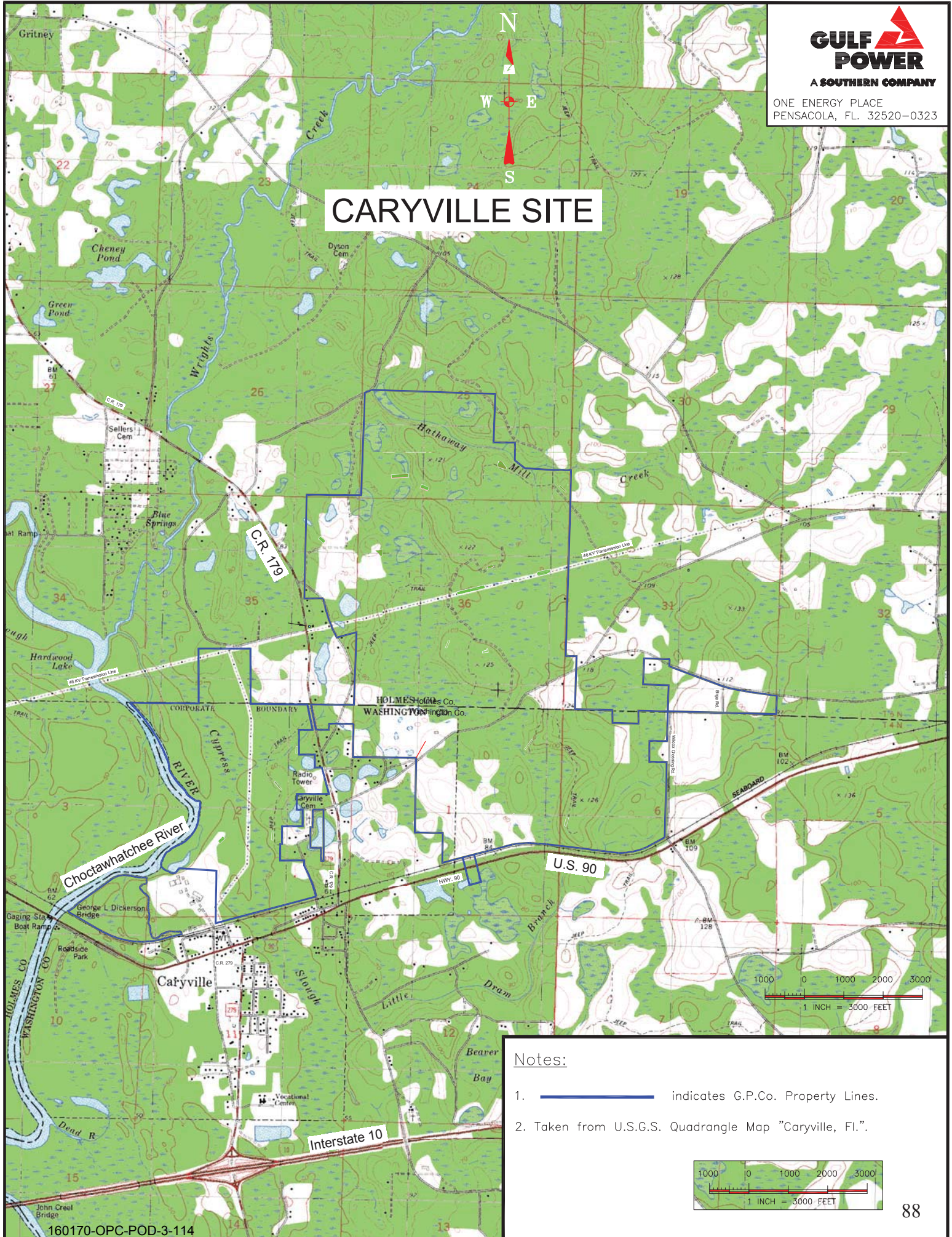
SCALE: 1 INCH = 2000 FEET





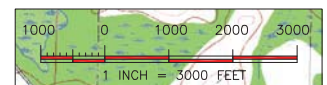


# CARYVILLE SITE



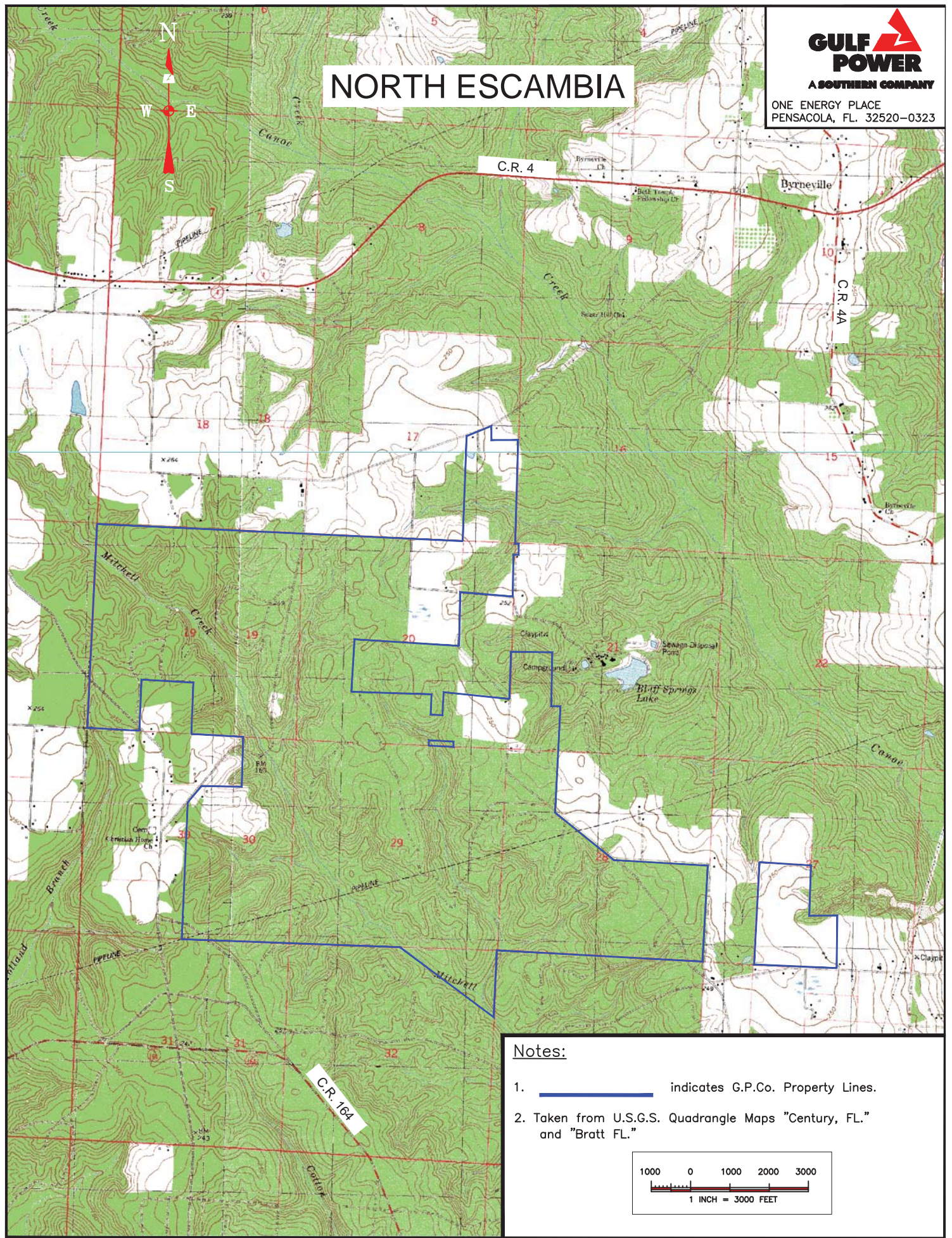
**Notes:**

1. ————— indicates G.P.Co. Property Lines.
2. Taken from U.S.G.S. Quadrangle Map "Caryville, Fl."



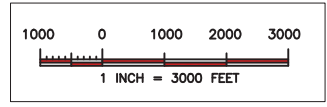


# NORTH ESCAMBA



**Notes:**

1. \_\_\_\_\_ indicates G.P.Co. Property Lines.
2. Taken from U.S.G.S. Quadrangle Maps "Century, FL." and "Bratt FL."





GULF POWER COMPANY

SCHEDULE 7.1

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

(1) YEAR	(2) TOTAL INSTALLED CAPACITY MW	(3) FIRM CAPACITY IMPORT MW	(4) FIRM CAPACITY EXPORT MW	(5) NUG MW	(6) TOTAL CAPACITY AVAILABLE MW	(7) FIRM PEAK DEMAND MW	(8) RESERVE MARGIN BEFORE MAINTENANCE		(10) SCHEDULED MAINTENANCE MW	(11) RESERVE MARGIN AFTER MAINTENANCE	
							MW	% OF PEAK		MW	% OF PEAK
2015	2,348	885	(216)	0	3,017	2,449	568	23.2%	NONE	568	23.2%
2016	2,250	885	(214)	0	2,921	2,471	450	18.2%		450	18.2%
2017	2,250	885	(211)	0	2,924	2,499	425	17.0%		425	17.0%
2018	2,250	885	(211)	0	2,924	2,518	406	16.1%		406	16.1%
2019	2,238	885	(211)	0	2,912	2,516	396	15.7%		396	15.7%
2020	2,238	885	(211)	0	2,912	2,531	381	15.1%		381	15.1%
2021	2,238	885	(211)	0	2,912	2,550	362	14.2%		362	14.2%
2022	2,238	885	(211)	0	2,912	2,570	342	13.3%		342	13.3%
2023	3,100	0	(211)	0	2,889	2,589	300	11.6%		300	11.6%
2024	3,100	0	(211)	0	2,889	2,608	281	10.8%		281	10.8%

GULF POWER COMPANY

SCHEDULE 7.2

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

(1) YEAR	(2) TOTAL INSTALLED CAPACITY MW	(3) FIRM CAPACITY IMPORT MW	(4) FIRM CAPACITY EXPORT MW	(5) NUG MW	(6) TOTAL CAPACITY AVAILABLE MW	(7) FIRM PEAK DEMAND MW	(8) RESERVE MARGIN BEFORE MAINTENANCE		(10) SCHEDULED MAINTENANCE MW	(11) RESERVE MARGIN AFTER MAINTENANCE	
							MW	% OF PEAK		MW	% OF PEAK
2014-15	2,743	885	(219)	0	3,409	2,146	1,263	58.9%	NONE	1,263	58.9%
2015-16	2,383	885	(216)	0	3,052	2,112	940	44.5%		940	44.5%
2016-17	2,289	885	(214)	0	2,960	2,150	810	37.7%		810	37.7%
2017-18	2,289	885	(211)	0	2,963	2,171	792	36.5%		792	36.5%
2018-19	2,274	885	(211)	0	2,948	2,170	778	35.9%		778	35.9%
2019-20	2,274	885	(211)	0	2,948	2,180	768	35.2%		768	35.2%
2020-21	2,274	885	(211)	0	2,948	2,197	751	34.2%		751	34.2%
2021-22	2,270	885	(211)	0	2,944	2,214	730	33.0%		730	33.0%
2022-23	2,270	885	(211)	0	2,944	2,230	714	32.0%		714	32.0%
2023-24	3,162	0	(211)	0	2,951	2,246	705	31.4%		705	31.4%

GULF POWER COMPANY

SCHEDULE 8

PLANNED AND PROSPECTIVE GENERATING FACILITY ADDITIONS AND CHANGES

(1) Plant Name	(2) Unit No.	(3) Location	(4) Unit Type	(5) Fuel		(7) Fuel Transport		(9) Const Start Mo/Yr	(10) Com'l In-Service Mo/Yr	(11) Effective Date Mo/Yr	(12) Gen Max Nameplate KW	(13) Net Capability		(15) Status
				Pri	Alt	Pri	Alt					Summer MW	Winter MW	
Lansing Smith <sup>(1)</sup>	1	Bay County 36/2S/15W	FS	C	--	WA	--	--	06/65	04/15	149,600	(66.0)	(66.0)	D
Lansing Smith <sup>(2)</sup>	2	Bay County 36/2S/15W	FS	C	--	WA	--	--	06/67	04/15	190,400	(195.0)	(195.0)	D
Scholz	1	Jackson County 12/3N/7W	FS	C	--	RR	WA	--	03/53	04/15	49,000	(46.0)	(46.0)	R
Scholz	2	Jackson County 12/3N/7W	FS	C	--	RR	WA	--	03/53	04/15	49,000	(46.0)	(46.0)	R
Scherer	3	Monroe County, GA	FS	C	--	RR	--	--	01/87	06/15	222,750	(3.0)	(3.0)	CR
Daniel	1	Jackson Cnty, MS 42/5S/6W	FS	C	HO	RR	TK	--	09/77	10/15	274,125	(2.0)	(2.0)	D
Daniel	2	Jackson Cnty, MS 42/5S/6W	FS	C	HO	RR	TK	--	06/81	11/15	274,125	(2.0)	(2.0)	D
Lansing Smith <sup>(3)</sup>	1	Bay County 36/2S/15W	FS	C	--	WA	--	--	06/65	03/16	149,600	(96.0)	(96.0)	R
Lansing Smith <sup>(4)</sup>	2	Bay County 36/2S/15W	FS	C	--	WA	--	--	06/65	03/16	149,600	n/a	n/a	R



**SCHEDULE 8**  
**PLANNED AND PROSPECTIVE GENERATING FACILITY ADDITIONS AND CHANGES**

(1) Plant Name	(2) Unit No.	(3) Location	(4) Unit Type	(5) Fuel		(7) Fuel Transport	(8) Fuel Transport	(9) Const Start Mo/Yr	(10) Com'l In-Service Mo/Yr	(11) Effective Date Mo/Yr	(12) Gen Max Nameplate KW	(13) Net Capability		(15) Status
				Pri	Alt							Pri	Alt	
Perdido LFG	3	Escambia County	IC	LFG	--	PL	--	01/16	06/16	06/16	1,600	1.5	1.5	P
Pea Ridge	1 - 3	Santa Rosa County 15/1N/29W	CT	NG	--	PL	--	--	05/98	12/18	14,250	(12.0)	(15.0)	R
Daniel	1	Jackson Cnty, MS 42/5S/6W	FS	C	HO	RR	TK	--	09/77	12/22	274,125	(2.0)	(2.0)	D
Daniel	2	Jackson Cnty, MS 42/5S/6W	FS	C	HO	RR	TK	--	06/81	12/22	274,125	(2.0)	(2.0)	D
Combustion Turbines	1 - 4	Unknown	CT	NG	--	PL	--	06/19	06/23	06/23	928,000	866.0	892.0	P

Footnotes:

- 1) One Smith coal-fired unit derated to minimum load per Florida Department of Environmental Protection MATS Deadline Extension.
- 2) One Smith coal-fired unit off-line per Florida Department of Environmental Protection MATS Deadline Extension.
- 3) Smith 1 retires in 3/2016 following derated status.
- 4) Smith 2 retires in 3/2016 following off-line status.

Abbreviations:

<u>Unit Type</u>	<u>Fuel</u>	<u>Status</u>	<u>Fuel Transportation</u>
FS - Fossil Steam	C - Coal	CR - Certified Rating change	PL - Pipeline
S - Steam	NG - Natural Gas	D - Environmental derate	TK - Truck
CT - Combustion Turbine	LO - Light Oil	P - Planned, but not authorized by utility	RR - Railroad
CC - Combined Cycle	HO - Heavy Oil	R - To be retired	WA - Water
IC - Internal Combustion	LFG - Landfill Gas	U - Under construction, less than or equal to 50% complete	
	WDS - Wood Waste Solid	V - Under construction, more than 50% complete	

**GULF POWER COMPANY**

**Schedule 9**

Status Report and Specifications of Proposed Generating Facilities

	Perdido Unit # 3
(1) Plant Name and Unit Number:	
(2) Net MW Capacity	
a. Summer:	1.5
b. Winter:	1.5
Gross MW Capacity	
a. Summer:	1.6
b. Winter:	1.6
(3) Technology Type:	IC
(4) Anticipated Construction Timing	
a. Field construction start - date:	01/15
b. Commercial in-service date:	06/15
(5) Fuel	
a. Primary fuel:	LFG
b. Alternate fuel:	N/A
(6) Air Pollution Control Strategy:	Manufactured to EPA Emission Standards
(7) Cooling Method:	Water
(8) Total Site Area:	2.47 acres
(9) Construction Status:	Pending
(10) Certification Status:	Not Applied
(11) Status with Federal Agencies:	Not Applied
(12) Projected Unit Performance Data	
Planned Outage Factor (POF):	2.7%
Unplanned Outage Factor (UOF):	1.3%
Equivalent Availability Factor (EAF):	96.0%
Capacity Factor (%):	94.0%
Average Net Operating Heat Rate (ANOHR):	11,247
(13) Projected Unit Financial Data	
Book Life (Years):	15
Total Installed Cost (In-Service Year \$/kW):	2,858
Total O&M (In-Service Year \$000):	279
K Factor:	1.3017

**Schedule 9**  
 Status Report and Specifications of Proposed Generating Facilities

(1)	Plant Name and Unit Number:	Combustion Turbines
(2)	Net MW Capacity a. Summer: b. Winter	866 892
	Gross MW Capacity a. Summer: b. Winter	876 1002
(3)	Technology Type:	GT
(4)	Anticipated Construction Timing a. Field construction start - date: b. Commercial in-service date:	06/19 06/23
(5)	Fuel a. Primary fuel: b. Alternate fuel:	NG DFO
(6)	Air Pollution Control Strategy:	Dry Low NOx Burners
(7)	Cooling Method:	Evaporative Cooling
(8)	Total Site Area:	Unknown
(9)	Construction Status:	Planned Not Committed
(10)	Certification Status:	Not Applied
(11)	Status with Federal Agencies:	Not Applied
(12)	Projected Unit Performance Data Planned Outage Factor (POF): Unplanned Outage Factor (UOF): Equivalent Availability Factor (EAF): Capacity Factor (%): Average Net Operating Heat Rate (ANOHR):	1.4% 3.6% 95.0% 10.5% 10,276
(13)	Projected Unit Financial Data Book Life (Years): Total Installed Cost (In-Service Year \$/kW): Direct Construction Cost (~15 \$/kW): AFUDC Amount (\$/kW): Escalation (\$/kW): Fixed O&M (23 \$/kW - Yr): Variable O&M (23 \$/MWH): K Factor:	40 608 459 68 81 14.17 4.87 1,3436

**GULF POWER COMPANY**

**Schedule 10**

Status Report and Specifications of Proposed Directly Associated Transmission Lines

- |   |         |
|---|---------|
| (1) Point of Origin and Termination:    | Unknown |
| (2) Number of Lines:                    | Unknown |
| (3) Right-of-Way:                       | Unknown |
| (4) Line Length:                        | Unknown |
| (5) Voltage:                            | Unknown |
| (6) Anticipated Construction Timing:    | Unknown |
| (7) Anticipated Capital Investment:     | Unknown |
| (8) Substations:                        | Unknown |
| (9) Participation with Other Utilities: | N/A     |

This page is intentionally blank.