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Florida Public Service Commission  
2540 Shumard Oak Boulevard  
Tallahassee, Florida 32399-0850

Re: Calpine Construction Finance Company's Ten-Year Site Plan

Dear Ms. Bayo:

Pursuant to Commission Rule 25-22.071, Florida Administrative Code, enclosed are twenty-five copies of the Ten-Year Site Plan, 2001-2010, of Calpine Construction Finance Company, L.P.

I will appreciate your confirming receipt of this Ten-Year Site Plan by stamping the attached filing copy thereof and returning same to my attention.

As always, thanks to you and your Staff for your considerate and professional assistance. If you have any questions, please give me a call.

Cordially yours,

*Robert Scheffel Wright*  
Robert Scheffel Wright

Enclosures

copy: Michael Haff (with one copy of enclosure)

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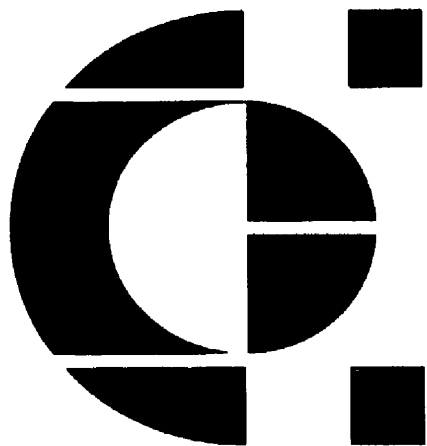
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*Ten-Year Site Plan  
2001-2010*

*April 2001*

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**CALPINE CONSTRUCTION FINANCE COMPANY, L.P.**

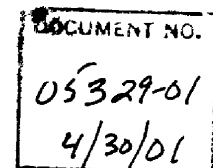
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**TEN-YEAR SITE PLAN  
FOR ELECTRICAL GENERATING FACILITIES  
AND ASSOCIATED TRANSMISSION LINES,  
2001-2010**

**Submitted to:**

**STATE OF FLORIDA  
PUBLIC SERVICE COMMISSION**

**April 2001**



## TABLE OF CONTENTS

EXECUTIVE SUMMARY . . . . .	1
Chapter 1. Calpine Construction Finance Company, L.P.. . . . .	4
Chapter 2. Description of Existing Facilities . . . . .	5
Chapter 3. Forecast of Electric Power Demand and Energy Consumption . . . . .	6
Chapter 4. Forecasting Methods and Procedures . . . . .	8
Chapter 5. Forecast of Facilities Requirements . . . . .	9
I. Osprey Energy Center. . . . .	9
A. Description of the Osprey Energy Center . . . . .	10
B. Osprey Energy Center Site and Location . . . . .	10
C. Osprey Energy Center Directly Associated Transmission Facilities. . . . .	11
D. Osprey Energy Center Gas Supply Arrangements and Facilities . . . . .	11
E. Osprey Energy Center Water Supply Arrangements and Associated Facilities . . . . .	12
F. Osprey Energy Center Regulatory and Permitting Schedules. . . . .	13
II. Blue Heron Energy Center . . . . .	13
A. Description of Blue Heron Energy Center . . . . .	13
B. Blue Heron Energy Center Site and Location . . . . .	14
C. Blue Heron Energy Center Directly Associated Transmission Facilities . . . . .	14

	D.	Blue Heron Energy Center Gas Supply Arrangements and Facilities . . . . .	15
	E.	Blue Heron Energy Center Water Supply Arrangements and Associated Facilities . . . . .	15
	F.	Blue Heron Energy Center Regulatory and Permitting Schedule . . . . .	16
	IV.	Potential Sites . . . . .	16
	A.	Central Florida Site . . . . .	16
	B.	Southwest Florida Site . . . . .	17
Chapter 6.		Other Planning Assumptions and Information . .	19
		Modeling Transmission Constraints . . . . .	19
		Analysis of Overall Project Economics . . . . .	20
		Derivation of Base Case Fuel Price Forecast . . . . .	20
		Sensitivity Analyses of Fuel Price Differentials . . . . .	21
		Generating Unit Performance Modeling . . . . .	21
		Financial Assumptions . . . . .	21
		Integrated Resource Planning Process . . . . .	22
		Generation and Transmission Reliability Criteria . . . . .	22
		Durability of Demand Side Management Program Energy Savings . . . . .	22
		Strategic Concerns . . . . .	23
		Procurement Process for Supply-Side Resources . . . . .	23
		Transmission Construction and Upgrade Plans . . . . .	24

Chapter 7. Environmental and Land Use Information . . . . 25

I. Osprey Energy Center . . . . . 25

    A. Site Description . . . . . 25

    B. Land and Environmental Features . . 25

    C. Water Supply . . . . . 26

    D. Air and Noise Emissions . . . . . 27

II. Blue Heron Energy Center . . . . . 27

    A. Site Description . . . . . 27

    B. Land and Environmental Features . . 27

    C. Water Supply . . . . . 29

    D. Air and Noise Emissions . . . . . 29

**LIST OF SCHEDULES**

1	Existing Generating Facilities as of December 31, 2000 . . . . .	30
2.1	History and Forecast of Energy Consumption and Number of Customers by Customer Class . . . . .	31
2.2	History and Forecast of Energy Consumption and Number of Customers by Customer Class . . . . .	32
2.3	History and Forecast of Energy Consumption and Number of Customers by Customer Class . . . . .	33
3.1	History and Forecast of Summer Peak Demand . . . . .	34
3.2	History and Forecast of Winter Peak Demand . . . . .	35
3.3	History and Forecast of Annual Net Energy for Load-GWH . . . . .	36
4	Previous Year and 2-Year Forecast of Retail Peak Demand and Net Energy for Load by Month . . . . .	37
5	Fuel Requirements . . . . .	38
6.1	Energy Sources (Units) . . . . .	39
6.2	Energy Sources (Percent) . . . . .	40
7.1	Forecast of Capacity, Demand, and Scheduled Maintenance at Time of Summer Peak . . . . .	41
7.2	Forecast of Capacity, Demand, and Scheduled Maintenance at Time of Winter Peak . . . . .	42
8	Planned and Prospective Generating Facility Additions and Changes . . . . .	43
9	Status Report and Specifications of Proposed Generating Facilities . . . . .	44
10	Status Report and Specifications of Proposed Directly Associated Transmission Lines . . . . .	46

**LIST OF FIGURES**

Figure 1: Osprey Transmission Facilities Map . . . . . 48

Figure 2: Osprey Energy Center Site Location . . . . . 49

Figure 3: Osprey Energy Center Site Location and Surroundings . . . . . 50

Figure 4: Blue Heron Energy Center Site Location . . . . . 51

Figure 5: Blue Heron Energy Center Site Location and Surroundings . . . . . 52

Figure 6: Blue Heron Energy Center Regional Transmission Map 53

**LIST OF TABLES**

Table 1: Osprey Energy Center Estimated Plant Performance and Emissions Data . . . . . 54

Table 2: Blue Heron Energy Center Estimated Plant Performance and Emissions Data . . . . . 55



## EXECUTIVE SUMMARY

Pursuant to Rule 25-22.071, Florida Administrative Code ("F.A.C."), and Section 186.801, Florida Statutes (2000), Calpine Construction Finance Company, L.P. ("Calpine") hereby submits its Ten-Year Site Plan for Electrical Generating Facilities and Associated Transmission Lines, 2001-2010.

Calpine presently plans to develop, own, and operate two natural gas-fired combined cycle generating plants in Florida. The two electrical power plants are the Osprey Energy Center ("Osprey Project") and the Blue Heron Energy Center ("Blue Heron Project"). Calpine has identified additional potential power plant sites which may be located in central Florida and southwest Florida, respectively. (All four projects are collectively referred to as the "Calpine Projects".) Based on Calpine's current power sales agreements and projected resource needs, the company is developing the Osprey Energy Center, an approximately 529 megawatt ("MW") (based on manufacturer's guarantees at average ambient site conditions) natural gas-fired combined cycle generating unit to be located in the City of Auburndale in Polk County, Florida, and the Blue Heron Energy Center, a 1,058 MW natural gas-fired combined cycle generating unit to be located in Indian River County, Florida. Based upon Calpine's anticipated future resource needs, the company has identified two potential sites, as defined in Rule 25-22.070, F.A.C., for future generation planning purposes. Calpine tentatively plans to develop a 500 MW (nominal) natural

gas-fired combined cycle generating plant at each of the two potential sites, one in central Florida and the other in southwest Florida.

Natural gas will be provided to the Osprey Project and Blue Heron Project by Gulfstream Natural Gas System, L.L.C. ("Gulfstream"), which is developing a new trans-Florida natural gas pipeline to be permitted and constructed by Gulfstream. The Osprey Project and Blue Heron Project will be significant customers of this second, major, trans-Florida natural gas pipeline. Natural gas will be provided to Gulfstream receipt points in the Mobile Bay area by natural gas producers or marketing companies (or both) for delivery on a firm transportation basis through the Gulfstream pipeline to the Osprey Project and the Blue Heron Project. Calpine will procure the needed gas supplies (commodity) for the Calpine Projects through an optimized combination of short-term contract purchases, long-term contract purchases, and spot market purchases.

Calpine's planned combined cycle generating units utilize high efficiency generation technology with high reliability and availability rates. In addition, the Calpine Projects will have environmentally responsible emissions profiles with the use of clean-burning natural gas, good combustion practice, and additional emissions control technologies that will minimize sulfur dioxide, nitrogen oxides, carbon monoxide, and volatile organic compound emissions. The Calpine Projects' exceptionally clean technology will protect against risks associated with future changes in

environmental regulations while improving the overall environmental profile of electricity generation in Florida.

Presently, the full output of the Osprey Energy Center is committed to Seminole Electric Cooperative, Inc. ("Seminole") pursuant to a long-term power purchase agreement (the "Seminole-Calpine PPA" or the "PPA"). Power produced from the other Calpine Projects will be sold at wholesale to other utilities and power marketers for use in Peninsular Florida. Calpine expects that virtually all of the sales from the Calpine Projects will be made to other utilities and power marketers for use in Peninsular Florida--that is, within the Florida Reliability Coordinating Council region. As such, subject to their being committed to Peninsular Florida load-serving utilities, the other Calpine Projects will significantly and substantially enhance Peninsular Florida's generation reserve margins.

## CHAPTER 1

### CALPINE CONSTRUCTION FINANCE COMPANY, L.P.

Calpine Construction Finance Company, L.P., a Delaware limited partnership, will be the developer and owner of the Calpine Projects. As the developer and owner of the Calpine Projects, Calpine either is currently or will be arranging for the permitting, engineering, procurement and construction of the Calpine Projects and for any other services necessary to bring the Calpine Projects into commercial operation.

On February 23, 2000, the Federal Energy Regulatory Commission ("FERC") approved Calpine's Rate Schedule No. 1, which permits Calpine to enter into negotiated wholesale power sales agreements with willing purchasers. Calpine Construction Finance Company, L.P., 90 FERC ¶61,164. Calpine is filing this Ten-Year Site Plan pursuant to Section 186.801, Florida Statutes (2000) and, pursuant to a stipulation accepted by the Commission in its order determining need for the Osprey Energy Center, Calpine will continue to file ten-year site plans and other information requested by the Commission. In Re: Petition for Determination of Need for the Osprey Energy Center in Polk County by Seminole Electric Cooperative and Calpine Construction Finance Company, L.P., Order No. 01-0421-FOF-EC (Fla. P.S.C., February 21, 2001).

## CHAPTER 2

### DESCRIPTION OF EXISTING FACILITIES

Calpine Construction Finance Company, L.P. has no existing electric generation or transmission facilities located in Florida. (See Schedule 1.) However, Calpine Corporation, Calpine's parent company, owns through its subsidiaries 100 percent of the ownership interests in the Auburndale Power Plant, a 150 MW natural gas and oil-fired qualifying cogeneration facility located in the City of Auburndale, Polk County, Florida, immediately adjacent to the Osprey Project Site. Another Calpine Corporation subsidiary is developing the Auburndale Power Partners Peaker Project, a natural gas-fired, combustion turbine generating unit within the existing Auburndale Power Plant site. As designed, the Auburndale Peaker Project will have 115 MW of capacity at summer peak conditions and 134 MW of capacity at winter peak conditions. The Auburndale Peaker Project is expected to achieve commercial in-service status in the first quarter of 2002, and its output will be sold in the wholesale market to Peninsular Florida retail-serving utilities.

## CHAPTER 3

### FORECAST OF ELECTRIC POWER DEMAND AND ENERGY CONSUMPTION

Preliminary electric power demand and energy analyses have been completed for the Osprey and Blue Heron Projects based on economic dispatch within the Peninsular Florida bulk power grid.

Over the planning horizon covered in this Ten-Year Site Plan, the Osprey Project is projected to operate approximately 8,275 hours per year, with projected generation of approximately 4,300,000 megawatt-hours ("MWH") per year, reflecting a total capacity factor of approximately 94.5 percent. All of the Osprey Project's output over the 2001-2010 planning horizon is available to Seminole pursuant to the Seminole-Calpine PPA.

Over the planning horizon covered in this Ten-Year Site Plan, the Blue Heron Project is projected to operate approximately 8,275 hours per year, with projected generation of approximately 8,600,000 MWH per year, reflecting a total capacity factor of approximately 94.5 percent.

As noted elsewhere in this Ten-Year Site Plan, all of the electricity sales from the Osprey and Blue Heron Projects will be made at wholesale to Seminole and other utilities. Thus, Schedules 2.1 and 2.2, which require data for retail power sales, are not applicable. Schedule 2.3 presents the total forecasted number of wholesale customers and sales for resale. Schedules 3.1, 3.2, and 3.3 present total forecasted summer peak demand, winter peak demand, and net energy for load for both the Osprey Project and the Blue Heron Project. Because of these Projects' high efficiency and

relatively low-cost position in the overall supply stack for Peninsular Florida, Calpine anticipates that the electricity sales from the Osprey Project and Blue Heron Project, at the times of the summer and winter peaks (both the system peak experienced by Calpine and the Peninsular Florida coincident system peak), will be at the respective Projects' full rated output, i.e., 496 MW at the time of the summer peak and 578 MW at the time of the winter peak for the Osprey Project, and 992 MW at the time of the summer peak and 1,156 MW at the time of the winter peak for the Blue Heron Project. (These projections do not include the additional output that may be available from duct-firing and power augmentation.)

Schedule 4 is not applicable to Calpine because it calls for retail sales and peak demand data. Schedules 5, 6.1, and 6.2 present information regarding fuel requirements and energy sources for Calpine. Schedules 7.1 and 7.2 present information regarding forecasts of capacity, demand, and scheduled maintenance at the time of summer and winter peaks. Due to their high efficiency and relative low-cost position within the available generation resources in Peninsular Florida, Calpine expects that in both summer and winter peak conditions, all of the capacity of both the Osprey Project and Blue Heron Project will be committed on a firm basis to other Peninsular Florida utilities, even if only on a week-ahead, day-ahead, or hourly basis. Accordingly, Calpine forecasts that its firm summer and winter coincident peak demands will be the sum of the full rated outputs of the Osprey Project and the Blue Heron Project, for each respective season.

## CHAPTER 4

### FORECASTING METHODS AND PROCEDURES

Analyses of the projected operations of the Osprey Energy Center and the Blue Heron Energy Center were prepared using the PROMOD IV® computer model. PROMOD IV® is a probabilistic model that simulates the operations of electric power systems. PROMOD IV® is primarily used as a production costing model and can also be used to evaluate electric system reliability. It can be used to prepare utility fuel budget forecasts, evaluate the economics and operations of proposed capacity additions, project utility operating costs, estimate the prices of firm power and energy in defined markets, project hourly marginal energy costs, and calculate avoided energy and capacity costs.

The inputs to PROMOD IV® include generating unit data for existing and planned power plants in a defined power supply system, fuel consumption and fuel cost data, load and other utility system data, and data regarding transactions within the system. The primary outputs are individual utility or system production costs, generation by unit, fuel usage, and reliability information. PROMOD IV® utilizes computationally efficient algorithms that yield results identical to those that would be produced with direct specification of values for all availability states of all units in a power supply system.



## CHAPTER 5

### FORECAST OF FACILITIES REQUIREMENTS

Schedules 7.1 and 7.2 present information regarding forecasts of capacity, demand, and scheduled maintenance at the time of summer and winter peaks. Because of their high efficiency and relatively low-cost position within the available generation resources in Peninsular Florida, Calpine expects that in both summer and winter peak conditions, all of the capacity of the Calpine Projects will be committed on a firm basis to Seminole and to other Peninsular Florida utilities. Accordingly, Calpine projects that its firm summer and winter peak demands will in fact be the full rated output of the Projects for each respective season. Calpine believes that this will be representative of the coincident peak seasonal demands imposed on Calpine's Projects at the time of the Peninsular Florida summer and winter coincident peaks. Schedule 8 presents information regarding planned and prospective generating facility additions and changes.

#### I. Osprey Energy Center

The Osprey Energy Center will be a natural gas-fired, combined cycle electrical power plant located in the City of Auburndale, Polk County, Florida. Expected to achieve commercial in-service status in the second quarter of 2003, the Osprey Energy Center will supply capacity and associated energy for sale, at wholesale, to Seminole and, in the event that Seminole does not elect to exercise its rights to purchase all of the Osprey Project's output at certain times, to other Peninsular Florida utilities.

#### **A. Description of the Osprey Energy Center**

The Osprey Energy Center will be a natural gas-fired, combined cycle electrical power plant. The Osprey Project will consist of two advanced technology Siemens-Westinghouse Model 501F combustion turbine generators ("CTGs") with the capability to use power augmentation to increase the CTGs' power output, two matched heat recovery steam generators ("HRSGs") that include duct-firing capability, and one steam turbine generator rated for the full steam production capacity of the HRSGs. The Osprey Project will have a heat rate of approximately 6,800 Btu per kWh at average ambient conditions based on the Higher Heating Value ("HHV") of natural gas. The Osprey Project's process and make-up water to the cooling towers will be supplied by reclaimed water from the City of Auburndale and on-site groundwater wells.

Calpine's current projections indicate that the Osprey Project will operate approximately 8,275 hours per year, with projected generation of approximately 4,300,000 MWH per year, all of which will be sold at wholesale to Seminole and possibly to other Florida utilities.

#### **B. Osprey Energy Center Site and Location**

The Osprey Energy Center site ("Osprey Site") will be located in the City of Auburndale, Polk County, Florida. (See Figure 2.) The Osprey Site consists of approximately 19.5 acres situated approximately 1.5 miles south of downtown Auburndale. The Osprey Site was formerly a citrus grove and is currently unused. Land uses adjacent to the Osprey Site include the Tampa Electric Company

("TECO") Recker Substation and existing TECO 230 kV transmission line, the existing Auburndale Power Plant, a 150 MW cogeneration plant, the Auburndale Memorial Park cemetery, commercial and industrial businesses, and two small residential enclaves. (See Figure 3.) The Osprey Project has been planned and designed to be consistent with the City of Auburndale's zoning category and comprehensive plan future land use designation applicable to utility uses.

**C. Osprey Energy Center Directly Associated Transmission Facilities**

The Osprey Energy Center will be electrically interconnected to the Peninsular Florida transmission grid at the TECO Recker Substation and associated 230 kV transmission line located adjacent to the southeast boundary of the Osprey Site. (See Figure 1.) Transmission system impact studies prepared for Calpine included load flow analyses, short circuit studies, and transient stability studies. The transmission system impact studies indicate that under normal operating conditions, i.e., with all facilities in service, the Osprey Project will not materially burden the transmission system or violate any transmission constraints. Transmission system upgrades required to accommodate the delivery of the Osprey Project's output on a firm basis at all times will be paid for by Calpine pursuant to TECO's open access transmission tariff.

**D. Osprey Energy Center Gas Supply Arrangements and Facilities**

Natural gas will be provided to the Osprey Project via firm

transportation service through the Gulfstream pipeline. Gulfstream recently received its certificate of public convenience and necessity from the Federal Energy Regulatory Commission. Gulfstream has let the contract for fabrication of the pipe for the project and has received the first shipment of pipe from the manufacturer. Gulfstream anticipates that the pipeline will be operational as planned in June 2002. The main Gulfstream pipeline is planned to traverse the southern portion of Polk County. Gas will be supplied via a 16-inch lateral diameter pipeline that will connect the Osprey Project to the main Gulfstream pipeline. Natural gas transportation service will be provided pursuant to a Precedent Agreement between Calpine and Gulfstream. Pursuant to the Precedent Agreement, Gulfstream has committed to provide firm gas transportation service to operate the Osprey Project for a term of 20 years with renewal provisions beyond the initial term.

**E. Osprey Energy Center Water Supply Arrangements and Associated Facilities**

Reclaimed water will be provided to the Project from the City of Auburndale's Allred Municipal Wastewater Treatment Plant. Reclaimed water pipelines will be required by the Osprey Project to intertie with the City of Auburndale wastewater treatment facilities. The pipelines to the Allred Municipal Wastewater Treatment Plant will be approximately one mile in length and will be constructed in existing public right-of-way. Additionally, other minor pipeline modifications will be made to enhance discharge capability. The water and wastewater pipelines will be

permitted and constructed separately by the City of Auburndale and paid for by Calpine.

**F. Osprey Energy Center Regulatory and Permitting Schedules**

Calpine has filed a complete site certification application ("SCA") for the Osprey Energy Center with the Florida Department of Environmental Protection. The land use hearing was held in January 2001, and the Siting Board approved the Land Use Order on April 24, 2001. The site certification hearing was held on April 17, 2001. The Florida Public Service Commission granted its affirmative determination of need for the Osprey Energy Center by its Order No. 01-0421-FOF-EC, issued on February 21, 2001.

**II. Blue Heron Energy Center**

The Blue Heron Energy Center will be a natural gas-fired, combined cycle electrical power plant located west of Vero Beach in Indian River County. Expected to achieve commercial in-service status in early 2004, the Blue Heron Project will supply capacity and energy at wholesale to Peninsular Florida load-serving utilities.

**A. Description of Blue Heron Energy Center**

The Blue Heron Energy Center will be a natural gas-fired, combined cycle electrical power plant. The Blue Heron Project will consist of four advanced technology Siemens-Westinghouse Model 501F combustion turbine generators with the capability to use power augmentation to increase the CTGs' power output, four matched HRSGs that include duct-firing capability, and two steam turbine generators rated for the full steam production capacity of the

HRSBs. The Blue Heron Project is anticipated to have a heat rate of approximately 6,800 Btu per kWh at average ambient conditions based on the HHV of natural gas. The Blue Heron Project's process and make-up water to the cooling towers will be supplied by Indian River County and the Indian River Farms Water Control District.

Calpine's current projections indicate that the Blue Heron Project will operate approximately 8,275 hours per year, with projected generation of approximately 8,600,000 MWH per year, all of which will be sold at wholesale to other Peninsular Florida utilities.

#### **B. Blue Heron Energy Center Site and Location**

The Blue Heron Project site ("Blue Heron Site") is located west of the City of Vero Beach in Indian River County, Florida. (See Figure 4.) The Blue Heron Site consists of approximately 47 acres situated approximately 4.5 miles southwest of Vero Beach, east of Interstate 95. The Blue Heron Site is primarily undeveloped and is currently unused. Land uses adjacent to the Blue Heron Site include the OceanSpray spray field, Interstate 95, agricultural uses, a correctional institution, a landfill and low density residential areas. (See Figure 5.) The Blue Heron Project will be planned and designed to be consistent with the Indian River County zoning category and comprehensive plan future land use designation applicable to utility uses.

**C. Blue Heron Energy Center Directly Associated Transmission Facilities**

The Blue Heron Project is tentatively planned to be electrically tied to the Peninsular Florida transmission grid by interconnecting to two of Florida Power & Light Company's ("FPL") 230 kV transmission lines, specifically those running from Malabar to Midway and from Malabar to Emerson. Interconnection and system impact studies have been completed by FPL for the Blue Heron Project for the summer peak of 2004. These studies indicate those upgrades of transmission facilities that will be required to accommodate power deliveries from the Blue Heron Project to other utilities in Peninsular Florida. The identified upgrades will be paid for by Calpine pursuant to FPL's open access transmission tariff.

**D. Blue Heron Energy Center Gas Supply Arrangements and Facilities**

Natural gas will be provided to the Blue Heron Site through the Gulfstream pipeline. Gas will be supplied through an approximately 15-mile, 16-inch lateral pipeline to be constructed by Gulfstream that will connect the Blue Heron Project to the main Gulfstream pipeline. Natural gas transportation service will be provided pursuant to a Precedent Agreement between Calpine and Gulfstream. Pursuant to the Precedent Agreement, Gulfstream has committed to provide firm gas transportation service to operate the Blue Heron Project for a term of 20 years with renewal provisions beyond the initial term.

**E. Blue Heron Energy Center Water Supply Arrangements and Associated Facilities**

It is anticipated that stormwater and reuse water will be provided to the Blue Heron Project from the Indian River Farms Water Control District and Indian River County, respectively. Water pipelines will be required by the Blue Heron Project to interconnect with the Indian River Farms Water Control District and Indian River County water source locations. The design of the interconnection locations and facilities is currently under way.

**F. Blue Heron Energy Center Regulatory and Permitting Schedules**

Calpine filed the site certification application ("SCA") for the Blue Heron Project in October 2000. The land use hearing is currently planned for 2001, and the site certification hearing is planned for 2002. However, pending the execution of letters of intent or agreements for the sale of the Blue Heron Project's output to other Peninsular Florida utilities or other developments, Calpine has not yet filed its petition for determination of need for the Blue Heron Project.

**IV. Potential Sites**

**A. Central Florida Site**

Based upon its anticipated future resource needs, Calpine has identified a potential site in Central Florida ("Central Florida Project") for a nominal 500 MW natural gas-fired combined cycle generating unit.

The Central Florida Project site was identified as a potential site due to its close proximity to transmission resources and major



natural gas pipelines. The potential site is primarily agricultural and surrounded by industrial uses. Due to the preliminary and confidential nature of the Central Florida Project, Calpine is unable to disclose the location of the Central Florida Project site. However, general information relating to the Central Florida Project may be disclosed at this time.

The power plant will consist of two Siemens-Westinghouse Model 501F advanced technology dry, low-NO<sub>x</sub> combustion turbine generators with the capability to use steam for power augmentation to increase the CTGs' power output, two matched heat recovery steam generators that may include duct-firing capability, and one steam turbine generator. The combustion turbines are extremely efficient and extremely reliable. The gas-fired combined cycle technology is exceptionally clean and will contribute to improving the overall environmental profile of electricity generation in Florida.

#### **B. Southwest Florida Site**

Based upon its projected future resource needs, Calpine has identified an additional potential site in Southwest Florida ("Southwest Florida Project") for a nominal 500 MW natural gas-fired combined cycle generating unit.

The Southwest Florida Project site was identified due to its close proximity to a major load center and transmission resources. The Southwest Florida Project site is primarily agricultural. Due to the preliminary and confidential nature of the Southwest Florida Project, Calpine is unable to disclose the location of the Southwest Florida Project. However, general information relating

to the Southwest Florida Project may be disclosed at this time.

The power plant will consist of two Siemens-Westinghouse Model 501F advanced technology dry, low-NO<sub>x</sub> combustion turbine generators with the capability to use steam for power augmentation to increase the CTGs' power output, two matched heat recovery steam generators that may include duct-firing capability, and one steam turbine generator. The combustion turbines are extremely efficient and extremely reliable. In addition, the gas-fired combined cycle technology is exceptionally clean and will contribute to improving the overall environmental profile of electricity generation in Florida.

## CHAPTER 6

### OTHER PLANNING ASSUMPTIONS AND INFORMATION

This chapter addresses the twelve discussion items identified as other planning assumptions and information in Form FPSC/EAG 43.

#### **Modeling Transmission Constraints**

Transmission constraints and contingencies for the Osprey Energy Center were modeled using the General Electric MAPPS transmission system modeling software. The transmission system impact study for the Osprey Project included load flow analyses, transient stability analyses, and short circuit analyses. The transmission system impact studies indicate that, with certain planned upgrades of transmission facilities, the existing Peninsular Florida transmission grid will accommodate the delivery of the Osprey Project's net output to Seminole for use in Peninsular Florida. The studies also indicate that, under normal operating conditions, that is, with all facilities in service, the Osprey Project will not materially burden the transmission system or violate any transmission constraints or contingencies in Peninsular Florida. The actual transmission upgrades required to accommodate firm delivery of the Osprey Project's output at all times have been determined in accordance with TECO's open access transmission tariff. Pursuant to Calpine's request and TECO's tariff, TECO issued the Transmission Service Request Facilities Study report on August 31, 2000.

The contingency lists for both the power flow and stability analyses were developed in compliance with the FRCC Planning

Principles and Guides, dated September 25, 1996. The primary data for the transmission system impact study were obtained from the FRCC 1999 series summer and winter power flow cases for the year 2003, which were downloaded from the FERC Form 715 data site.

With respect to the Blue Heron Project, Calpine has requested both an interconnection study and a transmission system impact study from FPL pursuant to FPL's open access transmission tariff. The actual upgrades required to accommodate delivery of the Blue Heron Project's output for use in Peninsular Florida have been determined pursuant to FPL's open access transmission tariff.

#### **Analysis of Overall Project Economics**

Calpine's Ten-Year Site Plan provides for the construction and operation of the Osprey Energy Center and Blue Heron Energy Center as well as consideration of two potential sites. At this time, the overall economics of the Osprey Project and Blue Heron Project have been evaluated by estimating how much energy the Projects will generate within the Peninsular Florida power supply system based on economic dispatch modeling using the PROMOD IV® computer model. Because the Osprey Project and Blue Heron Project are significantly cost-effective, both operationally and in terms of the Projects' installed cost, no sensitivity cases with respect to variations in the load forecast were analyzed for this Ten-Year Site Plan.

#### **Derivation of Base Case Fuel Price Forecast**

The projected operations of the Osprey Project and Blue Heron Project reported in this Ten-Year Site Plan were based on representative fuel prices paid historically for electric fuels in

Florida.

### **Sensitivity Analyses of Fuel Price Differentials**

One sensitivity analysis of the Osprey Project's and Blue Heron Project's operations was prepared using a high natural gas price forecast. The results of this sensitivity indicated slightly lower capacity factors for the Osprey and Blue Heron Projects but slightly greater reductions in Peninsular Florida wholesale power supply costs resulting from those Projects' more efficient operations within the Peninsular Florida power supply system.

### **Generating Unit Performance Modeling**

Performance of both the Osprey Project and the Blue Heron Project was modeled at an estimated equivalent availability factor of approximately 94.5 percent. Both Projects were modeled with a forced outage rate of approximately 2.0 percent and a maintenance outage rate of approximately 3.5 percent on an annual average basis. The Calpine Projects were modeled as part of an integrated least-cost dispatch of the Peninsular Florida power supply system using the PROMOD IV® model. These analyses yielded projected capacity factors of approximately 92% to 95% for each Project over the 2003-2012 analysis period.

### **Financial Assumptions**

The financial analyses prepared using the PROMOD IV® model assumed a total installed project cost of \$333 per kilowatt for both the Osprey Project and the Blue Heron Project.

### **Integrated Resource Planning Process**

Calpine generally considered all reasonably feasible and available supply-side alternatives in selecting the generation technology for the Osprey Project. Several technologies, such as waste-to-energy, were eliminated from consideration because they are not cost-effective. Screening analyses were prepared for the following technologies: gas-fired and oil-fired combustion turbines, gas-fired and oil-fired combined cycle units, gas-fired steam generation units, integrated coal gasification combined cycle units, and conventional pulverized coal-fired steam units, nuclear units, and renewable energy. Calpine believes that these screening analyses are applicable to all of the Calpine Projects.

### **Generation and Transmission Reliability Criteria**

Calpine selected gas-fired combined cycle generating technology on the basis of its overall efficiency and reliability, and plans to operate its plants to maximize their availability for supplying power into the Peninsular Florida wholesale power market. Calpine did not apply a specific minimum availability criterion to its selection of the generation technology.

### **Durability of Demand Side Management Program Energy Savings**

This item is not applicable to Calpine because as a wholesale-only utility, Calpine does not engage directly in end-use demand side management programs.

### **Strategic Concerns**

Calpine considered relevant strategic factors in evaluating alternatives for the Calpine Projects. Among other factors, Calpine considered that:

1. the Osprey and Blue Heron Projects will be fueled by domestically produced natural gas, which is not subject to interruption due to political or other events;
2. the Osprey and Blue Heron Projects' use of natural gas and advanced emissions control technology will protect Florida's environment while reducing Calpine's exposure to possible future changes in environmental regulations; and
3. the Osprey and Blue Heron Projects' high efficiencies will ensure their long-term viability.

### **Procurement Process for Supply-Side Resources**

Calpine evaluated various gas-fired combined cycle generators based on generally available industry information. At this time, Calpine plans to utilize Siemens-Westinghouse Model 501F combustion turbines for the Calpine Projects. The combustion turbines have been secured for both the Osprey Project and the Blue Heron Project by deposit. Full release of the combustion turbines has already occurred and these components are in a delivery queue. Full release of the heat recovery steam generators and the steam turbine generators is projected to be issued before construction begins.

## **Transmission Construction and Upgrade Plans**

Calpine's power plant construction plans do not require the construction or upgrade of any electric utility system transmission lines that would require certification under the Transmission Line Siting Act.



## CHAPTER 7

### ENVIRONMENTAL AND LAND USE INFORMATION

This chapter provides brief descriptions of the Osprey Project Site and the Blue Heron Project Site, as well as discussions of respective land and environmental features, water supply, and projected air and noise emissions information.

#### I. Osprey Energy Center

##### A. Site Description

The Osprey Project is located in the City of Auburndale, Polk County, Florida. (See Figure 2.) The Osprey Site consists of approximately 19.5 acres situated approximately 1.5 miles southwest of downtown Auburndale. Access to the Osprey Project Site will be from Derby Avenue, a two-lane county collector road that runs along the north boundary of the site.

##### B. Land and Environmental Features

The Osprey Site is a non-producing citrus grove and is currently unused. There are no sensitive natural resources, scenic or cultural lands, or archaeological or historic resources on the site. There are no sensitive human receptors, such as hospitals, near the Osprey Site. Land uses adjacent to the Osprey Site include the TECO Recker Substation and 230 kV transmission line, the existing 150 MW Auburndale Power Plant, two small residential enclaves, a cemetery, and commercial and industrial operations, as shown in Figure 3. The Osprey Site was selected because it has no environmentally sensitive features (e.g., wetlands or surface water bodies), because it is adjacent to existing, required

infrastructure (e.g., access road, substation and transmission lines), and because it is predominantly surrounded by commercial and industrial development and non-residential uses. Further, the Osprey Site's terrain is favorable for power plant siting and is of sufficient size to accommodate the Osprey Project. Locating the Osprey Project at the proposed site takes advantage of the existing adjacent electrical infrastructure (TECO's Recker Substation) and nearby reclaimed water supply/wastewater disposal facilities (Auburndale's Allred Wastewater Treatment Plant). Development of this land minimizes potential environmental impacts that might otherwise be associated with the construction of a power plant at a previously undeveloped site. On a MW per acre basis, the Osprey Project maximizes the land use while simultaneously minimizing environmental impacts.

### **C. Water Supply**

Plant make-up water for the cooling tower and process water requirements, as well as wastewater generation have been estimated. The Osprey Project will utilize a combination of reclaimed water and well water for its supply. Reclaimed water will be supplied from the City of Auburndale's Allred Wastewater Treatment Plant. Reclaimed water pipelines will be required by the Osprey Project to intertie with the City of Auburndale wastewater treatment facilities. The pipelines to the Allred wastewater treatment facilities will be approximately one mile in length and will be constructed in existing public right-of-way. Additionally, other minor pipeline modifications will be made to enhance discharge

capability. The reclaimed water supply and return pipelines will run along the north Recker Highway right-of-way to the Osprey Project site boundary. The water and wastewater pipelines will be permitted and constructed separately by the City of Auburndale.

**D. Air and Noise Emissions**

With its state-of-the-art combined cycle technology and natural gas fuel, the Osprey Project is projected to have relatively low air emissions. Estimates of the Project's air emissions are presented in Table 1.

Calpine has obtained, and will operate the Osprey Project in compliance with, a valid and effective variance from the City of Auburndale's applicable noise ordinances.

**II. Blue Heron Energy Center**

**A. Site Description**

The Blue Heron Project is located southwest of the City of Vero Beach in Indian River County, Florida. (See Figure 4.) The site consists of approximately 47 acres situated approximately 4.5 miles southwest of Vero Beach and immediately east of Interstate 95. Access to the site will be from Range Line Road or 74<sup>th</sup> Avenue.

**B. Land and Environmental Features**

The Blue Heron Site is vacant, undeveloped property. There are no scenic or cultural lands, nor any archaeological or historic resources on the site. Vegetation on the Blue Heron Site consists of dry flatwoods dominated by slash pine. Gallberry and saw palmetto dominate the understory. Two small wetlands are located on the Blue Heron Site. A small herbaceous marsh is located on the

central portion of the site and a larger shrub swamp is located on the northern portion. The Blue Heron Site is bordered on the north and east by drainage and irrigation canals. In addition to past logging activities on the Blue Heron Site, existing disturbances adjacent to the site include Interstate 95, which borders the west side of the site, and sprayfield operations to the east. The Blue Heron Project's construction and operation are not expected to impact any of the wetlands on the Blue Heron Site.

Wildlife on the Blue Heron Site consists of species typical for the south Florida flatwoods ecosystem. Only two listed species were observed on-site, the gopher tortoise and little blue heron, both common to the region. The Blue Heron Site does not represent unique habitat for any listed species.

Land uses adjacent to or near the Blue Heron Site include the OceanSpray wastewater spray field, Interstate 95, agricultural uses, a correctional institution, a landfill and low density residential areas. (See Figure 4.) The Blue Heron Site is adjacent to or near existing, required infrastructure (e.g., access roads and transmission lines), and is predominantly surrounded by industrial development and agricultural uses. Further, the terrain is favorable for power plant siting and is of sufficient size to accommodate the Blue Heron Project. On a MW per acre basis, the Blue Heron Project has been designed to minimize the amount of land used and simultaneously minimize the environmental impacts.

### **C. Water Supply**

Plant make-up water for the cooling tower and process water requirements, as well as wastewater generation have been estimated. The Blue Heron Project will utilize reuse water and stormwater provided by the Indian River Farms Water Control District and Indian River County for its water supplies. Water pipelines will be required by the Blue Heron Project to interconnect with the Indian River Farms Water Control District and Indian River County water source locations. The design of the interconnection locations and facilities is currently under way. There will not be any on-site wells.

### **D. Air and Noise Emissions**

With its state-of-the-art combined cycle technology and natural gas fuel, the Blue Heron Project is projected to have relatively low air emissions. Estimates of the Project's air emissions are presented in Table 2.

Based on the adjacent land uses, the Blue Heron Project is not expected to have a significant impact on the existing noise levels at the Blue Heron Site. The Blue Heron Project will be in compliance with all local noise ordinances.

**Calpine Construction Finance Company, L.P.**  
**Schedule 1**  
**Existing Generating Facilities**  
**As of December 31, 1999**

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
<u>Plant Name</u>	<u>Unit No.</u>	<u>Location</u>	<u>Unit Type</u>	<u>Fuel Pri</u>	<u>Fuel Alt</u>	<u>Fuel Pri</u>	<u>Transport Alt</u>	<u>Alt. Days Use</u>	<u>Commercial In-Service Month/Year</u>	<u>Expected Retirement Month/Year</u>	<u>Gen. Max. Nameplate KW</u>	<u>Net Capability Summer MW</u>	<u>Winter MW</u>

None

**Calpine Construction Finance Company, L.P.**  
**Schedule 2.1**  
**History and Forecast of Energy Consumption and**  
**Number of Customers by Customer Class**

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<u>Year</u>	<u>Population</u>	<u>Members Per Household</u>	<u>GWH</u>	<u>Average No. of Customers</u>	<u>Average KWH Consumption Per Customer</u>	<u>GWH</u>	<u>Average Number of Customers</u>	<u>Average KWH Consumption Per Customer</u>
Rural and Residential					Commercial			
Not Applicable								

Calpine Construction Finance Company, L.P.  
 Schedule 2.2  
 History and Forecast of Energy Consumption and  
 Number of Customers by Customer Class

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<u>Year</u>	<u>GWH</u>	<u>Industrial Average Number of Customers</u>	<u>Average KWH Consumption Per Customer</u>	<u>Railroads and Railways GWH</u>	<u>Street &amp; Highway Lighting GWH</u>	<u>Other Sales to Public Authorities GWH</u>	<u>Total Sales to Ultimate Consumers GWH</u>
Not Applicable							



Calpine Construction Finance Company, L.P.  
 Schedule 2.3  
 History and Forecast of Energy Consumption and  
 Number of Customers by Customer Class

(1)	(2)	(3)	(4)	(5)	(6)
<u>Year</u>	Sales For Resale <u>GWH</u>	Utility Use & Losses <u>GWH</u>	Net Energy For Load <u>GWH</u>	Estimated Wholesale Customers <u>(Average No.)</u>	Total Estimated Number Of Customers
2002	0		0	0	0
2003	3,009		3,009	1	1
2004	10,255		10,255	5	5
2005	13,018		13,018	6	6
2006	13,107		13,107	6	6
2007	13,174		13,174	6	6
2008	12,937		12,937	6	6
2009	12,947		12,947	6	6
2010	13,172		13,172	6	6
2011	13,065		13,065	6	6
2012	13,156		13,156	6	6

Calpine Construction Finance Company, L.P.  
 Schedule 3.1  
 History and Forecast of Summer Peak Demand in MW

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
<u>Year</u>	<u>Total</u>	<u>Wholesale</u>	<u>Retail</u>	<u>Interruptible</u>	<u>Residential Load Management</u>	<u>Residential Conservation</u>	<u>Comm./Ind. Load Management</u>	<u>Comm./Ind. Conservation</u>	<u>Net Firm Demand</u>
2002	0	0	0						0
2003	496	496	0						496
2004	1,488	1,488	0						1,488
2005	1,488	1,488	0						1,488
2006	1,488	1,488	0						1,488
2007	1,488	1,488	0						1,488
2008	1,488	1,488	0						1,488
2009	1,488	1,488	0						1,488
2010	1,488	1,488	0						1,488
2011	1,488	1,488	0						1,488
2012	1,488	1,488	0						1,488

Calpine Construction Finance Company, L.P.  
 Schedule 3.2  
 History and Forecast of Winter Peak Demand in MW

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
<u>Year</u>	<u>Total</u>	<u>Wholesale</u>	<u>Retail</u>	<u>Interruptible</u>	<u>Residential Load Management</u>	<u>Residential Conservation</u>	<u>Comm./Ind. Load Management</u>	<u>Comm./Ind. Conservation</u>	<u>Net Firm Demand</u>
2002/03	0	0	0						0
2003/04	578	578	0						578
2004/05	1,734	1,734	0						1,734
2005/06	1,734	1,734	0						1,734
2006/07	1,734	1,734	0						1,734
2007/08	1,734	1,734	0						1,734
2008/09	1,734	1,734	0						1,734
2009/10	1,734	1,734	0						1,734
2010/11	1,734	1,734	0						1,734
2011/12	1,734	1,734	0						1,734
2012/13	1,734	1,734	0						1,734

Calpine Construction Finance Company, L.P.  
 Schedule 3.3  
 History and Forecast of Annual Net Energy for Load - GWH

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<u>Year</u>	<u>Total</u>	<u>Residential Conservation</u>	<u>Comm./Ind. Conservation</u>	<u>Retail</u>	<u>Wholesale</u>	<u>Utility Use &amp; Losses</u>	<u>Net Energy for Load *</u>	<u>Load ** Factor %</u>
2002	0				0		0	0.0
2003	3,009				3,009		3,009	59.4
2004	10,255				10,255		10,255	67.3
2005	13,018				13,018		13,018	85.7
2006	13,107				13,107		13,107	86.3
2007	13,174				13,174		13,174	86.7
2008	12,937				12,937		12,937	84.9
2009	12,947				12,947		12,947	85.2
2010	13,172				13,172		13,172	86.7
2011	13,065				13,065		13,065	86.0
2012	13,156				13,156		13,156	86.4

Notes:

\* Net Energy for Load for 2003 and 2004 is based on a projected 2nd Quarter 2003 in-service for Osprey Energy Center, and a projected 2nd Quarter 2004 in-service date for the Blue Heron Energy Center.

\*\*Load Factor calculations are based on projected annual peak demands of 1,734 MW (winter peaks).

Calpine Construction Finance Company, L.P.  
**Schedule 4**

**Previous Year and 2-Year Forecast of Retail Peak Demand  
and Net Energy For Load by Month**

(1)	(2)	(3)	(4)	(5)	(6)	(7)
<u>Month</u>	<u>Actual</u>		<u>Forecast</u>		<u>Forecast</u>	
	<u>Peak Demand</u>	<u>NEL</u>	<u>Peak Demand</u>	<u>NEL</u>	<u>Peak Demand</u>	<u>NEL</u>
	<u>MW</u>	<u>GWH</u>	<u>MW</u>	<u>GWH</u>	<u>MW</u>	<u>GWH</u>
January	Not Applicable					
February						
March						
April						
May						
June						
July						
August						
September						
October						
November						
December						

Calpine Construction Finance Company, L.P.  
Schedule 5  
Fuel Requirements

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
	<u>Fuel Requirements</u>		<u>Units</u>	<u>Actual</u>	<u>Actual</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>
(1)	Nuclear		Trillion BTU													
(2)	Coal		1000 Ton													
(3)	Residual	Total	1000 BBL													
(4)		Steam	1000 BBL													
(5)		CC	1000 BBL													
(6)		CT	1000 BBL													
(7)		Diesel	1000 BBL													
(8)	Distillate	Total	1000 BBL													
(9)		Steam	1000 BBL													
(10)		CC	1000 BBL													
(11)		CT	1000 BBL													
(12)		Diesel	1000 BBL													
(13)	Natural G	Total	1000 MCF	N/A	N/A	0	14,494	69,735	88,528	89,132	89,583	87,976	88,044	89,574	88,845	89,464
(14)		Steam	1000 MCF													
(15)		CC	1000 MCF	N/A	N/A	0	14,494	69,735	88,528	89,132	89,583	87,976	88,044	89,574	88,845	89,464
(16)		CT	1000 MCF													
(17)	Other (Specify)		Trillion BTU													

Calpine Construction Finance Company, L.P.  
Schedule 6.1  
Energy Sources (Units)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
<u>Energy Sources</u>			<u>Units</u>	<u>Actual</u>	<u>Actual</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>
(1)	Annual Firm Interchange		GWH													
(2)	Nuclear		GWH													
(3)	Residual	Total	GWH													
(4)		Steam	GWH													
(5)		CC	GWH													
(6)		CT	GWH													
(7)		Diesel	GWH													
(8)	Distillate	Total	GWH													
(9)		Steam	GWH													
(10)		CC	GWH													
(11)		CT	GWH													
(12)		Diesel	GWH													
(13)	Natural Gas	Total	GWH	N/A	N/A	0	3,009	10,255	13,018	13,107	13,174	12,937	12,947	13,172	13,065	13,156
(14)		Steam	GWH													
(15)		CC	GWH	N/A	N/A	0	3,009	10,255	13,018	13,107	13,174	12,937	12,947	13,172	13,065	13,156
(16)		CT	GWH													
(17)	Other (Specify)		GWH													
(18)	Net Energy for Load		GWH	N/A	N/A	0	3,009	10,255	13,018	13,107	13,174	12,937	12,947	13,172	13,065	13,156

Calpine Construction Finance Company, L.P.  
Schedule 6.2  
Energy Sources (Percent)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
<u>Energy Sources</u>			<u>Units</u>	<u>Actual</u>	<u>Actual</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>
(1)	Annual Firm Interchange		%													
(2)	Nuclear		%													
(3)	Residual	Total	%													
(4)		Steam	%													
(5)		CC	%													
(6)		CT	%													
(7)		Diesel	%													
(8)	Distillate	Total	%													
(9)		Steam	%													
(10)		CC	%													
(11)		CT	%													
(12)		Diesel	%													
(13)	Natural Gas	Total	%	NA	NA	N/A	100	100	100	100	100	100	100	100	100	100
(14)		Steam	%													
(15)		CC	%	NA	NA	N/A	100	100	100	100	100	100	100	100	100	100
(16)		CT	%													
(17)	Other (Specify)		%													
(18)	Net Energy for Load		%	NA	NA	N/A	100	100	100	100	100	100	100	100	100	100



Calpine Construction Finance Company, L.P.

Schedule 7.1

Forecast of Capacity, Demand, and Scheduled Maintenance at Time of Summer Peak

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Year	Total Installed Capacity MW	Firm Capacity Import MW	Firm Capacity Export MW	QF MW	Total Capacity Available MW	System Firm Summer Peak Demand MW	Reserve Margin before Maintenance MW	% of Peak	Scheduled Maintenance MW	Reserve Margin after Maintenance MW	% of Peak
2002	0	0	0	0	0	0	N/A (1)	N/A (1)	0	N/A (1)	N/A (1)
2003	496	0	0	0	496	496	N/A (1)	N/A (1)	0	N/A (1)	N/A (1)
2004	1,488	0	0	0	1,488	1,488	N/A (1)	N/A (1)	0	N/A (1)	N/A (1)
2005	1,488	0	0	0	1,488	1,488	N/A (1)	N/A (1)	0	N/A (1)	N/A (1)
2006	1,488	0	0	0	1,488	1,488	N/A (1)	N/A (1)	0	N/A (1)	N/A (1)
2007	1,488	0	0	0	1,488	1,488	N/A (1)	N/A (1)	0	N/A (1)	N/A (1)
2008	1,488	0	0	0	1,488	1,488	N/A (1)	N/A (1)	0	N/A (1)	N/A (1)
2009	1,488	0	0	0	1,488	1,488	N/A (1)	N/A (1)	0	N/A (1)	N/A (1)
2010	1,488	0	0	0	1,488	1,488	N/A (1)	N/A (1)	0	N/A (1)	N/A (1)
2011	1,488	0	0	0	1,488	1,488	N/A (1)	N/A (1)	0	N/A (1)	N/A (1)
2012	1,488	0	0	0	1,488	1,488	N/A (1)	N/A (1)	0	N/A (1)	N/A (1)

T 7

Notes:

(1) As base load plants with low planned outage rates, Calpine expects to deliver the full rated output of the Calpine Projects at the time of summer peak.

Calpine Construction Finance Company, L.P.

Schedule 7.2

Forecast of Capacity, Demand, and Scheduled Maintenance at Time of Winter Peak

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Year	Total Installed Capacity MW	Firm Capacity Import MW	Firm Capacity Export MW	QF MW	Total Capacity Available MW	System Firm Winter Peak Demand MW	Reserve Margin before Maintenance MW	Reserve Margin after Maintenance % of Peak	Scheduled Maintenance MW	Reserve Margin after Maintenance MW	Reserve Margin after Maintenance % of Peak
2002	0	0	0	0	0	0	N/A (1)	N/A (1)	0	N/A (1)	N/A (1)
2003	578	0	0	0	578	578	N/A (1)	N/A (1)	0	N/A (1)	N/A (1)
2004	1,734	0	0	0	1,734	1,734	N/A (1)	N/A (1)	0	N/A (1)	N/A (1)
2005	1,734	0	0	0	1,734	1,734	N/A (1)	N/A (1)	0	N/A (1)	N/A (1)
2006	1,734	0	0	0	1,734	1,734	N/A (1)	N/A (1)	0	N/A (1)	N/A (1)
2007	1,734	0	0	0	1,734	1,734	N/A (1)	N/A (1)	0	N/A (1)	N/A (1)
2008	1,734	0	0	0	1,734	1,734	N/A (1)	N/A (1)	0	N/A (1)	N/A (1)
2009	1,734	0	0	0	1,734	1,734	N/A (1)	N/A (1)	0	N/A (1)	N/A (1)
2010	1,734	0	0	0	1,734	1,734	N/A (1)	N/A (1)	0	N/A (1)	N/A (1)
2011	1,734	0	0	0	1,734	1,734	N/A (1)	N/A (1)	0	N/A (1)	N/A (1)
2012	1,734	0	0	0	1,734	1,734	N/A (1)	N/A (1)	0	N/A (1)	N/A (1)

42

Notes:

(1) As base load plants with low planned outage rates, Calpine expects to deliver the full rated output of the Calpine Projects at the time of summer peak.

Calpine Construction Finance Company, L.P.

Schedule 8

Planned and Prospective Generating Facility Additions and Changes

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Plant Name	Unit No.	Location	Unit Type	Fuel Pri	Fuel Alt	Fuel Transport Pri	Fuel Transport Alt	Const. Start Date	Commercial In-Service Mo/Yr	Expected Retirement Mo/Yr	Gen. Max. Nameplate KW	Net Capability Summer MW	Net Capability Winter MW	Status
Osprey	1	Polk	CC	NG	N/A	PL	N/A	3Q/2001	2Q/2003	unknown	527,000	486	585	Planned
Blue Heron	1	Indian River	CC	NG	N/A	PL	N/A	3Q/2002	2Q/2004	unknown	1,054,000	972	1,170	Planned
Central Fla.	1	Confidential	CC	NG	N/A	PL	N/A	-	-	-	500,000	-	-	Potential
Southwest Florida	1	Confidential	CC	NG	N/A	PL	N/A	-	-	-	500,000	-	-	Potential

**Calpine Construction Finance Company, L.P.**  
**Schedule 9 - Osprey Energy Center**  
**Status Report and Specifications of Proposed Generating Facilities**

(1) Plant Name and Unit Number	Osprey Energy Center
(2) Capacity	
a. Summer:	496 MW
b. Winter:	578 MW
(3) Technology Type:	Combined Cycle
(4) Anticipated Construction Timing	
a. Field construction start - date:	3rd Quarter 2001
b. Commercial in service - date:	2nd Quarter 2003
(5) Fuel	
a. Primary fuel:	Natural Gas
b. Alternate fuel:	N/A
(6) Air Pollution Control Strategy:	Dry Low-NOx Burners, Selective Catalytic Reduction (SCR) and Good Combustion Practices
(7) Cooling Method:	Wet Cooling Tower
(8) Total Site Area:	19.5 acres
(9) Construction Status:	Planned
(10) Certification Status:	Need Determination Order issued 2/2001; Land Use Order approved 4/2001; Site Certification hearing held 4/2001
(11) Status With Federal Agencies:	Calpine has obtained Market Based Rate Authority from the FERC
(12) Projected Unit Performance Data	
Planned Outage Factor (POF):	3.5%
Forced Outage Factor (FOF):	2.0%
Equivalent Availability Factor (EAF):	94.5%
Estimated Capacity Factor (%):	94.5%
Average Net Operating Heat Rate (ANOR):	6800 BTU/kWH (HHV)
(13) Projected Unit Financial Data	
Book Life (Years):	30
Total Installed Cost (In-Service Year \$/kW):	N/A
Estimated Direct Construction Cost (\$/kW):	333/kW (Based on ISO Capacity)
AFUDC Amount (\$/kW):	N/A
Escalation (\$/kW):	N/A

**Calpine Construction Finance Company, L.P.**  
**Schedule 9 - Blue Heron Energy Center**  
**Status Report and Specifications of Proposed Generating Facilities**

(1) Plant Name and Unit Number	Blue Heron Energy Center
(2) Capacity	
a. Summer:	992 MW
b. Winter:	1,156 MW
(3) Technology Type:	Combined Cycle
(4) Anticipated Construction Timing	
a. Field construction start - date:	3rd Quarter 2002
b. Commercial in service - date:	2nd Quarter 2004
(5) Fuel	
a. Primary fuel:	Natural Gas
b. Alternate fuel:	N/A
(6) Air Pollution Control Strategy:	Dry Low-NOx Burners, Selective Catalytic Reduction (SCR) and Good Combustion Practices
(7) Cooling Method:	Wet Cooling Tower
(8) Total Site Area:	47 acres
(9) Construction Status:	Planned
(10) Certification Status:	Site Certification Application filed October 2000; Need Determination Petition targeted for 3rd Quarter 2001
(11) Status With Federal Agencies:	Calpine has obtained Market Based Rate Authority from the FERC
(12) Projected Unit Performance Data	
Planned Outage Factor (POF):	3.5%
Forced Outage Factor (FOF):	2.0%
Equivalent Availability Factor (EAF):	94.5%
Estimated Capacity Factor (%):	94.5%
Average Net Operating Heat Rate (ANOR):	6800 BTU/kWH (HHV)
(13) Projected Unit Financial Data	
Book Life (Years):	30
Total Installed Cost (In-Service Year \$/kW):	N/A
Estimated Direct Construction Cost (\$/kW):	333/kW (Based on ISO Capacity)
AFUDC Amount (\$/kW):	N/A
Escalation (\$/kW):	N/A

**Calpine Construction Finance Company, L.P.**  
**Schedule 10 - Osprey Energy Center**  
**Status Report and Specifications of Proposed Directly Associated Transmission Lines**

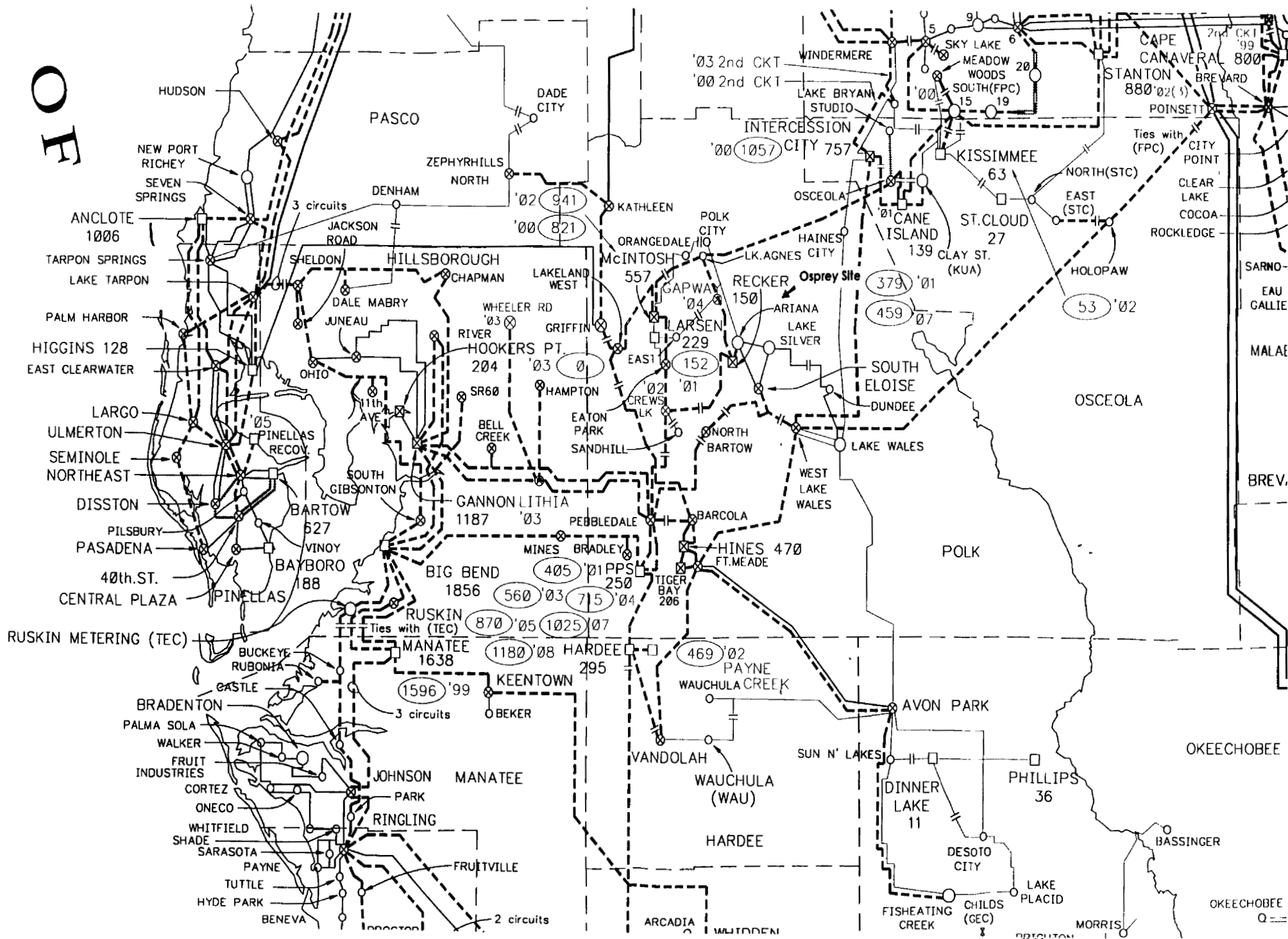
- (1) Point of Origin and Termination: N/A
- (2) Number of Lines: (Loop existing 230 kV line)
- (3) Right-of-Way: None required, all interconnection facilities will be located at the Project site.
- (4) Line Length: Approximately 1000 feet.
- (5) Voltage: 230 kV.
- (6) Anticipated Construction Time: 12 months.
- (7) Anticipated Capital Investment: \$2 million to \$3 million, depending on specific upgrade options selected.
- (8) Substations: System impact studies prepared for Calpine indicate that transmission line upgrades Recker to Ariana, and increased transformer capacity at the Ariana 230/69 kV station may be necessary, and advancing by one year the upgrade to the Recker to Lake Agnes in 2003.
- (9) Participation with Other Utilities: Possible participation with Tampa Electric to advance the upgrade of Lake Agnes.

**Calpine Construction Finance Company, L.P.**  
**Schedule 10 - Blue Heron Energy Center**  
**Status Report and Specifications of Proposed Directly Associated Transmission Lines**

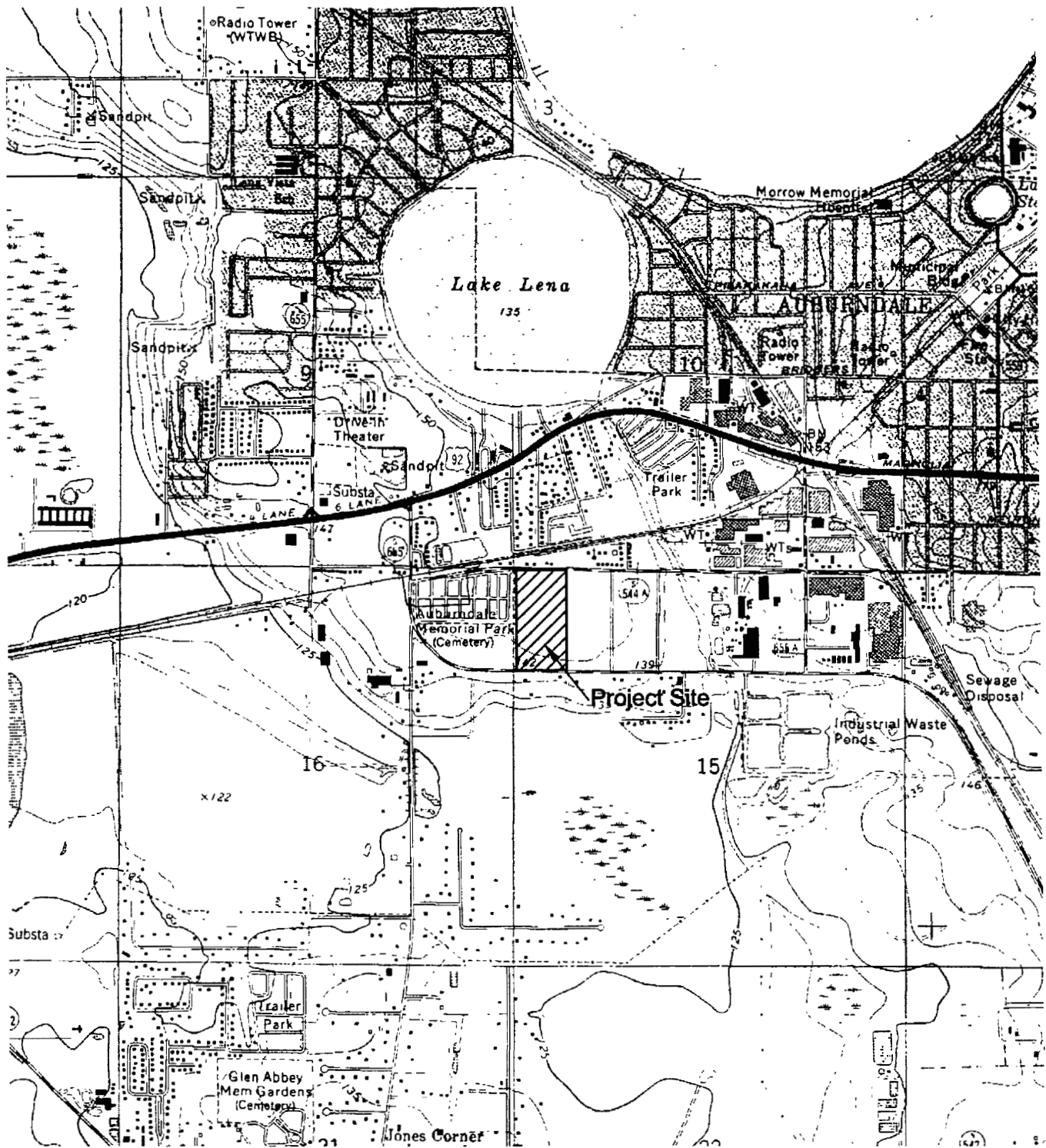
- (1) Point of Origin and Termination: N/A
- (2) Number of Lines: (Interconnection to adjacent existing 230 kV lines)
- (3) Right-of-Way: The interconnection facilities will be located on the Project site, which abuts Interstate Highway 95, in the public right-of-way associated with I-95, and in the right-of-way for FPL's existing 230 kV lines, the right-of-way for which is adjacent to I-95 on the west side of the highway.
- (4) Line Length: Less than 1000 feet.
- (5) Voltage: 230 kV.
- (6) Anticipated Construction Time: 12 months.
- (7) Anticipated Capital Investment: Unknown at this time; will depend on actual interconnection made pursuant to FPL's open access transmission tariff.
- (8) Substations: Not applicable; direct interconnect to 230 kV lines.
- (9) Participation with Other Utilities: The interconnection will be made pursuant to FPL's open access transmission tariff.

# Osprey Energy Center Regional Transmission Map

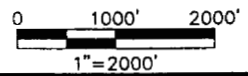
OF







**LEGEND**  
 PROJECT SITE 



**REFERENCE**

USGS 7.5 Minute Topographical Quadrangle, Auburndale, Florida



Figure 2

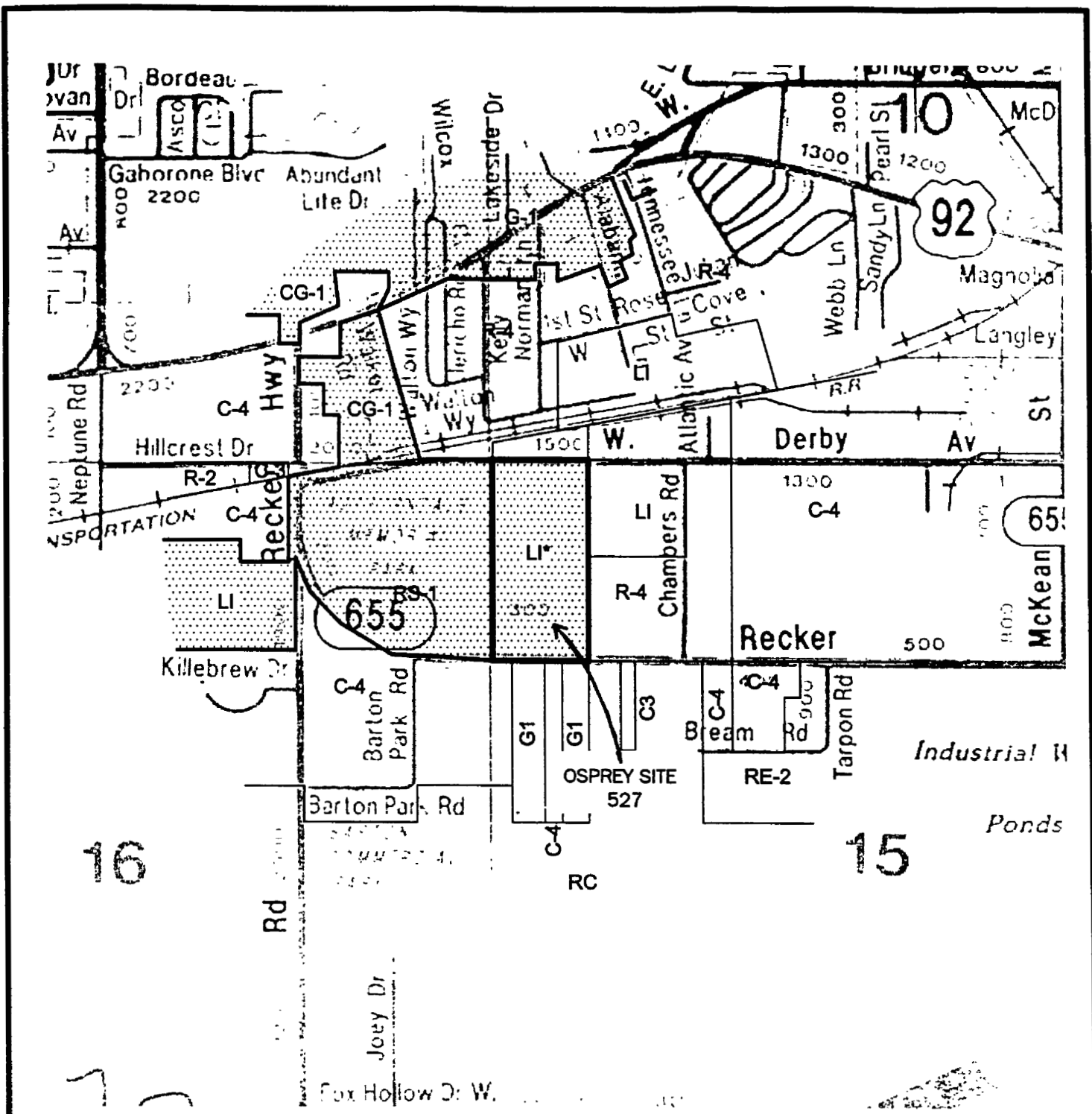
Tampa, Florida

Project Site Location

Client / Project  
 Calpine Construction Finance Company, L.P.  
 Osprey Energy Center 49

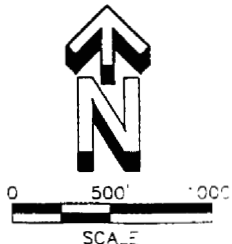
CAD BY: CDT	SCALE: 1"=2000'
CHK BY: RAZ	DATE: 02/04/00
REV BY: -	FILE No.: fig1_3_2-2.dwg

Job No. 993-9570  
 FIGURE



- Auburndale Zoning Districts**
- LI Light Industry
  - RS-1 Single Family Residential
  - GI General Industrial

- Polk County Zoning Districts**
- C-3 Regional Commercial
  - C-4 Heavy Commercial
  - GI General Industrial
  - R-4 Residential
  - RC Rural Conservation
  - RE-2 Rural Estates



**REFERENCE**

City of Auburndale Zoning Map  
 Polk County Zoning Map, Feb., 2000

\* Site has been annexed. Zoning designation is based on Auburndale District

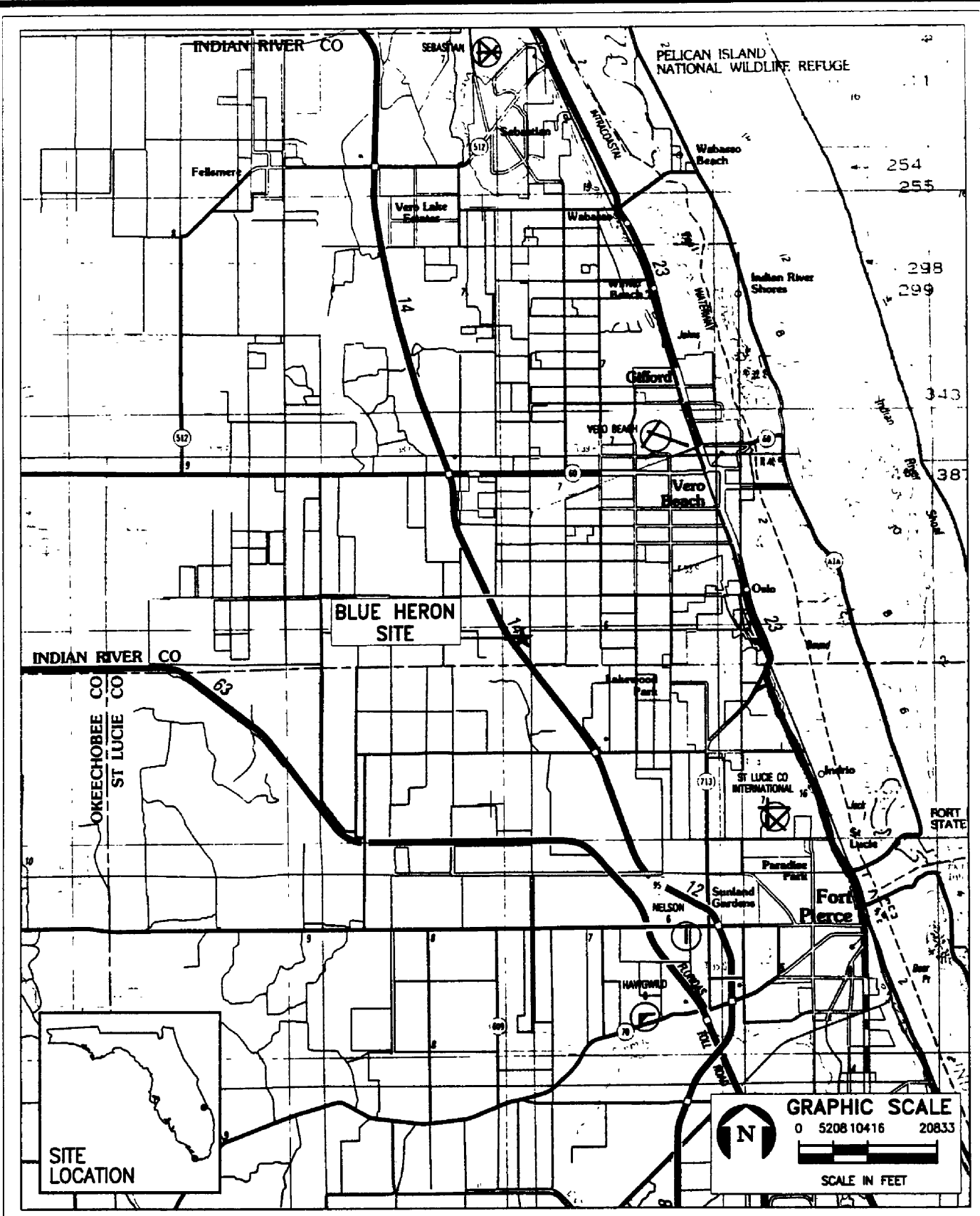
**Golder Associates**  
 Figure 3  
 Tampa, Florida

**Osprey Energy Center  
 Site Location and Surroundings**

Client / Project  
 Calpine Construction Finance Company, L.P.  
 Osprey Energy Center  
 50

CAD BY: CDT	SCALE: 1"=1000'
CHK BY: CA	DATE: 02/08/00
REV BY: -	FILE No.: fig2_2-2.dwg

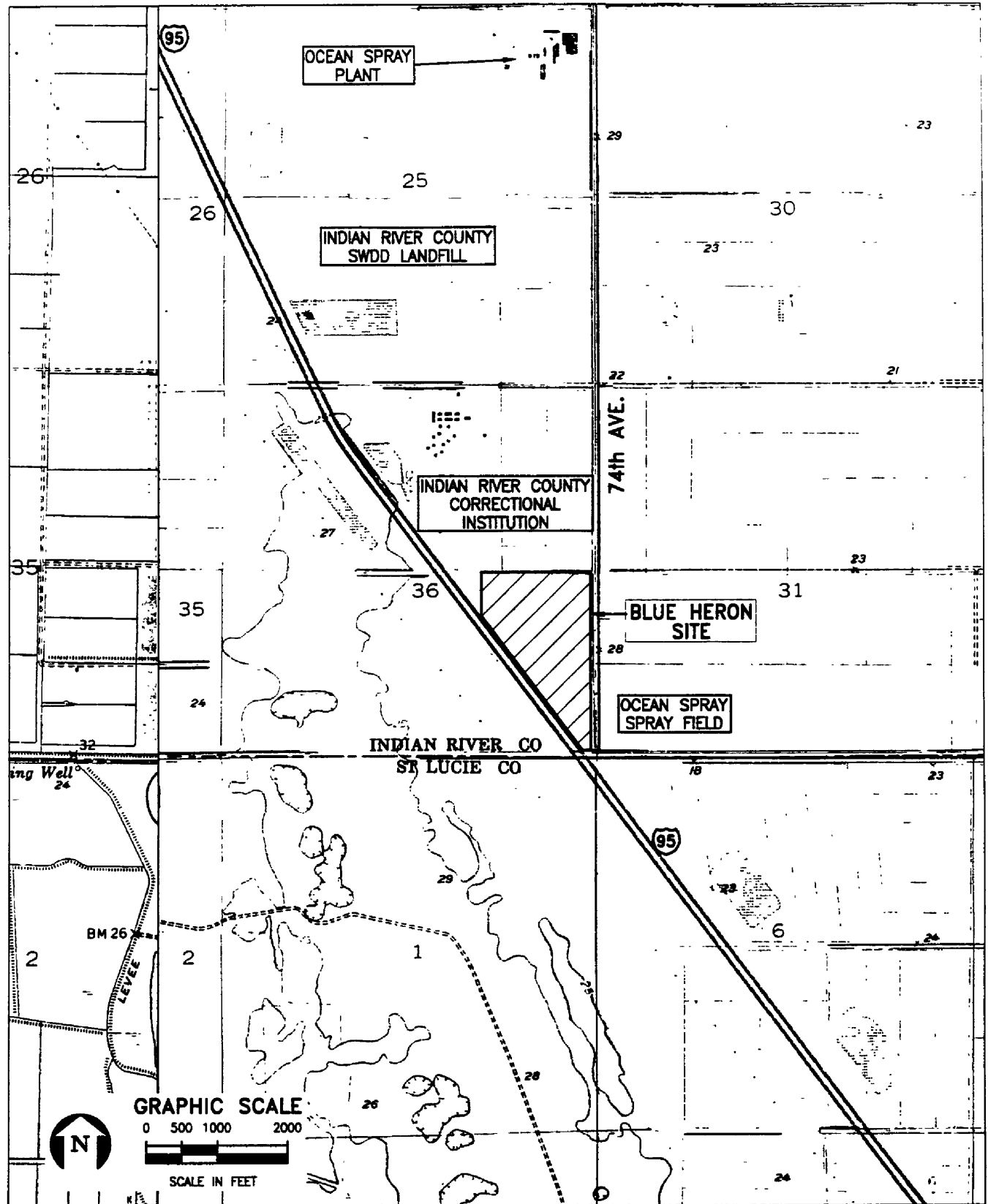
Job No 993-9570  
 FIGURE



**FIGURE 4.**  
**BLUE HERON ENERGY CENTER SITE LOCATION**

Source: USGS QUAD: FT. PIERCE, FL. 1988; ECT, 2000.

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



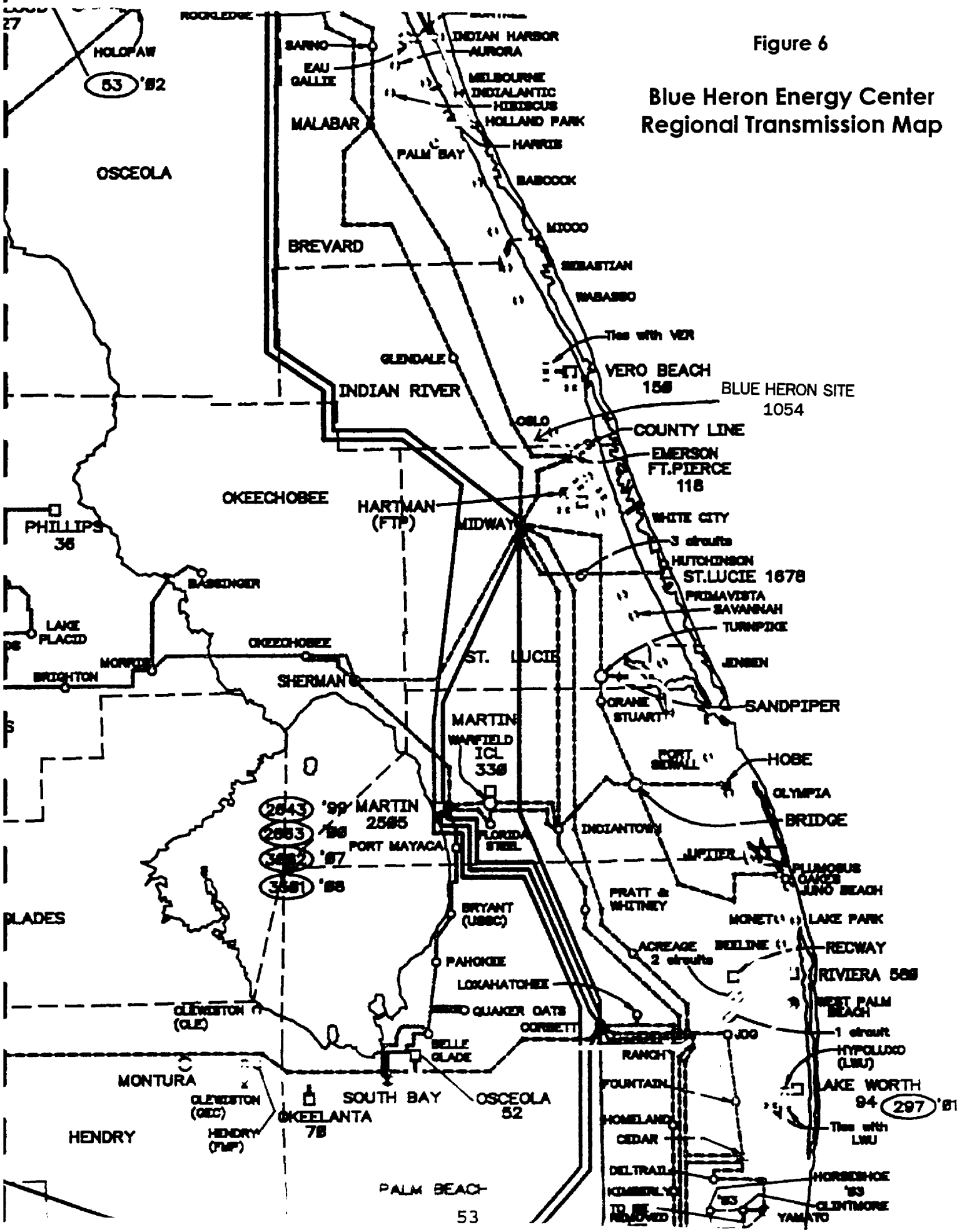
**FIGURE 5.**  
**BLUE HERON ENERGY CENTER SITE LOCATION**  
**AND SURROUNDINGS**

Source: USGS Quad: Oco, FL, & East of Gum Slough, FL, 1983; ECT, 2000.

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

Figure 6

# Blue Heron Energy Center Regional Transmission Map



**TABLE 1**  
**OSPREY ENERGY CENTER**  
**Estimated Plant Performance and Emissions Data**

Percent Load		100%	100%	100%	100%	70%	70%	70%	70%	60%	60%	60%	60%	100%
Ambient Temperature	F	95	74	59	32	95	74	59	32	95	74	59	32	95
Ambient Relative Humidity	%	80%	80%	60%	60%	80%	80%	60%	60%	80%	80%	60%	60%	80%
Gas Turbine Power	MW	324	347	362	390	222	240	253	272	190	205	216	233	357
Steam Turbine Power	MW	185	195	197	203	145	153	152	154	135	143	149	148	233
Net Cycle Power	MW	496	529	545	578	358	383	395	416	317	339	356	371	575
Net Cycle LHV Heat Rate	BTU/kW-hr	6,187	6,122	6,125	6,137	6,497	6,430	6,359	6,373	6,599	6,529	6,478	6,457	6,576
Net Cycle LHV Efficiency	%	55.2%	55.7%	55.7%	55.6%	52.5%	53.1%	53.7%	53.5%	51.7%	52.3%	52.7%	52.9%	51.9%
Net Cycle HHV Heat Rate	BTU/kW-hr	6,871	6,798	6,802	6,815	7,215	7,140	7,062	7,077	7,329	7,251	7,193	7,170	7,303
CTG fuel flow (lb/h)- total for two CTGs	lb/hr	146,325	154,237	159,099	168,918	110,864	117,346	119,634	126,212	99,806	105,621	109,911	114,296	155,858
CTG heat input, HHV basis (mmBtu/h)- total for two CTGs	MMBtu/hr	3,409	3,594	3,707	3,936	2,583	2,734	2,787	2,941	2,325	2,461	2,561	2,663	3,631
Duct burner fuel flow (lb/h)- total for two burners	lb/hr	0	0	0	0	0	0	0	0	0	0	0	0	24,308
Duct burner heat input, HHV basis (mmBtu/h)- two burners	MMBtu/hr	0	0	0	0	0	0	0	0	0	0	0	0	566
CTG exhaust gas flow (lb/h)- total for two CTGs (two duct burners when on)	lb/hr	6,630,800	6,973,469	7,218,232	7,578,580	5,692,996	5,888,867	6,028,774	6,258,506	5,081,836	5,240,757	5,354,272	5,539,920	6,655,108
CTG exhaust gas composition (% by volume)														
Nitrogen	%	72.64	73.47	74.37	74.82	72.93	73.82	74.63	75.07	72.93	73.77	74.56	75.04	68.31
Argon	%	0.91	0.92	0.93	0.94	0.92	0.09	0.94	0.94	0.92	0.93	0.94	0.94	0.86
Oxygen	%	12.13	12.28	12.51	12.53	13.00	13.11	13.26	13.26	12.99	12.97	13.07	13.15	9.85
Carbon dioxide	%	3.70	3.74	3.74	3.79	3.31	3.37	3.40	3.47	3.31	3.43	3.49	3.52	4.26
Water	%	10.62	9.59	8.44	7.92	9.85	8.77	7.77	7.26	9.86	8.90	7.94	7.36	16.73
NOx as NO2 (lb/h)- total for two stacks	lb/hr	44.1	46.3	48.6	51.5	34.2	35.4	36.7	38.9	30.4	32.0	33.5	34.8	55.0
based on ppmvd @ 15% O2	ppm	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
CO (lb/h)- total for two stacks	lb/hr	78	82	86	90	60	62	64	68	266	279	292	304	279
based on ppmvd @ 15% O2	ppm	10	10	10	10	10	10	10	10	50	50	50	50	29
VOC as CH4 (lb/h)- total for two stacks	lb/hr	9.9	10.4	10.9	11.5	14.1	14.7	15.3	16.0	12.7	13.3	14.0	14.5	24.8
based on ppmvd @ 15% O2	ppm	2.3	2.3	2.3	2.3	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.6
SO2 (lb/h)- total for two stacks	lb/hr	18.8	19.8	20.7	22.0	14.4	15.0	15.6	16.4	13.0	13.7	14.3	14.9	23.9
Particulates as PM10 (lb/h)- total for two stacks	lb/hr	38.0	40.1	42.2	44.5	32.1	33.4	34.6	36.1	28.7	29.8	30.9	32.1	45.6

54

Table 2  
 BLUE HERON ENERGY CENTER  
 Preliminary Estimated Plant Performance and Emissions Data

Percent Load		100%	100%	100%	100%	75%	75%	75%	75%	60%	60%	60%	60%	100%
Ambient Temperature	F	95	74	59	32	95	74	59	32	95	74	59	32	95
Ambient Relative Humidity	%	80%	80%	80%	50%	80%	80%	80%	80%	80%	80%	60%	60%	80%
Net Cycle Power	MW	1,012	1,054	1,099	1,174	738	780	822	884	604	658	712	750	1,176
Net Cycle HHV Heat Rate	BTU/KW-hr	6,753	6,710	6,698	6,848	7,222	7,112	7,002	6,848	7,590	7,342	7,094	7,005	7,151
Net Gas Turbine Power	MW	688	694	724	774	468	498	530	571	372	397	422	456	734
Net Steam Cycle Power	KW	344,504	360,100	372,868	395,102	270,880	280,472	290,084	312,956	231,918	280,391	288,884	294,349	440,800
Adjusted Cycle LHV Eff.	%	55.0	56.3	56.0	56.4	52.0	53	53.8	54.8	49.5	51	52.9	53.5	53
CTG fuel flow (lb/h)- total for two CTGs	lb/hr	289,120	303,660	318,200	337,840	231,840	244,400	256,960	263,320	199,560	209,660	219,780	228,600	319,320
CTG heat input, LHV basis (mmBtu/h)- total for two CTGs	MMBtu/hr	6,068	6,372	6,676	7,088	4,865	5,052	5,239	5,524	4,187	4,399	4,611	4,797	6,700
Duct burner heat input, LHV basis (mmBtu/h)- each burner	MMBtu/hr													500
CTG exhaust gas flow (lb/h)- total for two CTGs (two duct burners when on)	lb/hr	6,575,699	6,896,966	7,218,233	7,578,580	5,997,900	6,182,046	6,366,192	6,617,298	5,081,835	5,218,053	5,354,272	5,539,920	6,995,275
CTG exhaust gas composition (% by volume)														
Nitrogen	%	72.64	73.50	74.37	74.82	72.97	73.82	74.68	75.13	72.93	73.75	74.58	75.04	68.31
Argon	%	0.91	0.92	0.93	0.94	0.92	0.93	0.94	0.94	0.92	0.93	0.94	0.94	0.86
Oxygen	%	12.13	12.32	12.51	12.53	13.10	13.25	13.41	13.42	12.99	13.03	13.07	13.15	9.85
Carbon dioxide	%	3.70	3.72	3.74	3.79	3.26	3.30	3.34	3.39	3.31	3.40	3.49	3.52	4.28
Water	%	10.62	9.53	8.44	7.92	9.76	8.70	7.64	7.12	9.86	8.90	7.94	7.38	16.73
NOx as NO2 (lb/h)- total for two stacks	lb/hr	44.1	46.3	48.6	51.5	35.3	36.7	38.0	40.1	30.4	32.0	33.5	34.8	55.0
based on ppmvd @ 15% O2	ppm	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
CO (lb/h)- total for two stacks	lb/hr	78	86	86	90	62	64	66	70	266	279	282	304	279
based on ppmvd @ 15% O2	ppm	10	10	10	10	10	10	10	10	50	50	50	50	29
VOC as CH4 (lb/h)- total for two stacks	lb/hr	9.9	10.4	10.9	11.5	14.8	15.3	15.9	16.7	12.7	13.3	14.0	14.5	24.8
based on ppmvd @ 15% O2	ppm	2.3	2.3	2.3	2.3	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.6
SO2 (lb/h)- total for two stacks	lb/hr	18.8	19.8	20.7	22.0	15.1	15.7	16.3	17.2	13.0	13.7	14.3	14.9	23.9
Particulates as PM10 (lb/h)- total for two stacks	lb/hr	38.0	40.1	42.2	44.5	33.8	35.1	36.4	38.0	28.7	29.8	30.9	32.1	45.6
HRSG exit gas velocity (ft/s) based on 19 ft diameter stack	ft/s	55.2	57.6	60.0	62.9	50.2	51.5	52.8	54.8	42.5	43.5	44.5	45.9	60.0

U1  
U1