BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

DOCKET NOs. 02___-EI, 02___-EI
FLORIDA POWER & LIGHT COMPANY

IN RE: PETITION FOR DETERMINATION OF NEED FOR PROPOSED ELECTRICAL POWER PLANT IN MARTIN COUNTY OF FLORIDA POWER & LIGHT COMPANY

IN RE: PETITION FOR DETERMINATION OF NEED FOR PROPOSED ELECTRICAL POWER PLANT IN MANATEE COUNTY OF FLORIDA POWER & LIGHT COMPANY

TESTIMONY & EXHIBITS OF:

WILLIAM L. YEAGER

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

FLORIDA POWER & LIGHT COMPANY

DIRECT TESTIMONY OF WILLIAM L. YEAGER

DOCKET NOS. 02___-EI, 02___-EI

I. INTRODUCTION AND CREDENTIALS

Q. Please state your name and business address.

A. My name is William L. Yeager. My business address is Florida Power & Light Company, Power Generation Division, 700 Universe Boulevard, Juno Beach, Florida 33408-0420.

Q. By whom are you employed and what is your position?

A. I am employed by Florida Power & Light Company ("FPL" or the "Company") as General Manager of Florida Projects.

Q. Please describe your duties and responsibilities in that position.

A. I am responsible for the overall management and direction of licensing, engineering, procurement, construction and start-up activities associated with new supply-side generation projects for the Company. This includes the Martin Unit 8 and Manatee Unit 3 combined cycle generation projects.

Q. Please describe your educational background and the business experience that qualifies you to be Manager of Florida Projects?

A. I received a Bachelor of Mechanical Engineering from the Georgia Institute of Technology in 1982. I am a registered professional Engineer in the State of Florida and a member of the American Society of Mechanical Engineers.

My career began as a mechanical engineer with FPL in 1982. In 1987, I was lead engineer for the preliminary engineering phase of Lauderdale 4&5, two 400 MW combined cycle repowered units that came on line in 1992.

From 1988 to 1991, I was the Project Engineering Manager for FPL's Martin Units 3&4, two 400 MW combined cycle capacity additions. This project is noteworthy in the history of power generation since the four General Electric (GE) Model 7221 combustion turbines were the first to utilize the DLN2 dry low NO_x combustion system. The project overcame significant issues associated with this first of a kind installation – exceeding all performance and reliability targets and finishing under budget and on schedule.

Following completion of Martin Units 3&4, I spent the next four years in various management capacities at the FPL Martin Plant site, increasing my operational knowledge of combined cycle and conventional oil/gas-fired power plants. I then spent two years each as Operations Manager for ESI (now FPL Energy), an unregulated affiliate of FPL, and as Manager of Combustion Turbines.

From 1999 through 2001, I was Plant General Manager of FPL's Manatee Plant.

My experience with advanced combined cycle power plants, coupled with my intimate knowledge of the Martin and Manatee sites makes me uniquely suited for my leadership role on the Martin and Manatee Combined Cycle Expansion Projects.

II. PURPOSE

Q. What is the purpose of your testimony in this proceeding?

A. I am testifying in support of FPL's Petitions for Determination of Need ("Need Petition"), by describing the site and unit characteristics for the combined cycle power plants that will be built at FPL's Martin and Manatee plant sites, including the size, number and types of units, their heat rates and operating characteristics (i.e., equivalent availability factor, equivalent forced outage rate, capacity factor, and annual generation costs), the fuel types and sources of supply, the estimated cost of each installation, and the projected in-service dates. I will discuss FPL's experience with building and operating combined cycle generating plants and demonstrate that the assumptions made for the need study filed with the Need Petition about the output, operating efficiency, in-service date, construction cost, operating cost and operating reliability for the new generating plants are reasonable and achievable.

Q. Are you sponsoring an exhibit in this case.

A. Yes. I am sponsoring Exhibit __, which consists of the following documents that are attached to my testimony:

WLY-1	Typical 4x1 CC Unit Process Diagram
WLY-2	FPL Operational Combined Cycle Plants & FPL Combined Cycle Construction Projects In Progress
WLY-3	Martin Plant Vicinity Map
WLY-4	Martin Unit 8 Project Boundary
WLY-5	Martin Unit 8 Typical Power Block Area
WLY-6	Martin Unit 8 Fact Sheet
WLY-7	Overall Water Balance for the Martin Site
WLY-8	Martin Unit 8 Project Corridor Location
WLY-9	Martin Unit 8 Expected Construction Schedule
WLY-10	Construction Cost Components
WLY-11	Manatee Plant Vicinity Map
WLY-12	Manatee Unit 3 Project Boundary
WLY-13	Manatee Unit 3 Typical Power Block Area
WLY-14	Manatee Unit 3 Fact Sheet
WLY-15	Manatee Units 1&2 Gas Supply Map

WLY-16 Overall Water Balance for the Manatee Site

WLY-17 Manatee Unit 3 Expected Construction Schedule

Q. Are you sponsoring any part of the Need Study for this proceeding?

A. Yes, I sponsor Section III and Section VII.C of the Need Study.

III. OVERVIEW OF COMBINED CYCLE TECHNOLOGY

A. Description of Technology

Q. Would you please describe the combined cycle technology that will be used for the Martin and Manatee Projects?

A. Referring to Exhibit WLY-1, a combined cycle unit is a hybrid of combustion turbines (CTs), heat recovery steam generators (HRSGs), and a steam-driven turbine generator (STG). Each of the combustion turbines compress outside air into a combustion area where fuel, typically natural gas or light oil, is burned. The hot gases from the burning fuel air mixture drive a turbine, which, in turn, directly rotates a generator to produce electricity. The exhaust gas produced by each turbine, which is on the order of 1,100°F, is passed through a HRSG, before exiting the stack at approximately 200°F. The energy extracted by each HRSG produces steam, which is used to drive a STG. The utilization of waste heat from the combustion turbines provides an overall plant efficiency that is much better than that of the CTs or the conventional STG alone.

Each CT/HRSG combination is called a "train." The number of CT/HRSG trains used establishes the general size of the STG. In the case of Martin Unit 8 and Manatee Unit 3, four (4) CT/HRSG trains will be connected to one (1) STG; hence the terminology "four on one" (4x1) combined cycle plant.

B. Operating Advantages

Q. What level of operating efficiency is anticipated for the Martin and Manatee Projects?

A. Each of the proposed FPL combined cycle units is based on the use of GE "F" Class advanced combustion turbines. The primary difference between these GE 7FA CTs and conventional CTs is their efficiency. This difference results from higher firing temperatures made possible by advances in design. FPL has selected designs based on advanced CTs because they are more economical than conventional CTs at the capacity factors at which they are expected to operate on the FPL system.

In general, combined cycle plants can be expected to achieve fuel conversion rates of less than 7,000 Btu/kWh, as opposed to values in the 10,000 Btu/kWh range for more conventional steam-electric generating units. This is a fuel efficiency improvement of about 30 percent. FPL anticipates that the new Martin and Manatee combined cycle units will achieve a base heat rate of 6,850 Btu/kWh.

Q. Are there other operational advantages to combined cycle technology?

A. Yes. Another advantage of the multi-train combined cycle arrangement is that it allows for greater flexibility in matching system operating characteristics over time. As designed, the proposed Martin Unit 8 and Manatee Unit 3 each can function as either a base load or intermediate unit as required by the Company's system.

C. FPL's History of Building and Operating Combined Cycle Plants

Q. Does FPL have experience in building combined cycle plants?

A. Yes, FPL has extensive experience in building combined cycle plants. FPL's first combined cycle plant (Putnam 1&2) went into service in 1976. As shown in Document WLY-2, FPL has already placed 2,300 MW of combined cycle capacity in-service and has projects totaling an additional 3,548 MW in progress.

Q. Please describe FPL's history of operating combined cycle plants.

A. As I just mentioned, FPL has 2,300 MW of combined-cycle equipment presently in-service, including four (4) GE 7FA combustion turbines. Our expertise with this equipment and our commitment to total operational quality enabled us to achieve an operating run of 203 consecutive days—a world record for F technology GE equipment at that time. One unit even achieved an annual availability rate of 98%.

In addition to its combined cycle operating experience, FPL has extensive experience operating simple-cycle CTs, which comprise the "front end" of the combined cycle technology. FPL recently installed eight advanced CTs - GE 7FA (PG7241) at its Fort Myers and Martin plant sites in Florida. FPL also has been operating forty-eight smaller simple-cycle units for approximately 30 years.

Q. How can you characterize FPL's track record in building and operating combined cycle units?

A. To ensure ongoing success in today's highly competitive electricity generating industry, FPL focuses on excellence in people, technology and business and operating processes.

FPL promotes a shift team concept in its power plants that emphasizes empowerment, engagement and accountability, with an understanding that each employee has the necessary knowledge, skill and motivation to perform any required task. This multifunctional, team-driven and well-trained workforce is the key to our ability to consistently meet and often exceed plant performance objectives.

In 1994, we began commercial operation of two new combined cycle units at our Martin plant and, just two years later, were awarded *Power* magazine's Power Plant of the Year Award for world-class performance in O&M and availability. These units, which burn natural gas, provide us with an additional 948 megawatts of power. The Martin project was completed ahead of schedule, with a total installed cost significantly below the alternative fixed price turnkey bid on the job. In addition to being our lowest cost provider, this plant has excellent environmental characteristics.

With world-class operational skills upon which to draw, we maximize the value of our growing assets by utilizing the best practices that underlie FPL's industry-leading positions. Our fossil-fueled plants reached an all-time high of 90% availability in 2000 and 2001, ranking well above the 2000 industry average of 84% and placing FPL among the nation's best performers.

Q. **Please describe how FPL monitors the operational performance of its power plants.**

A. Technology is also helping us optimize plant operations, gain process efficiencies and leverage the deployment of technical skills as demand for services increases. An example is our Fleet Performance and Diagnostics

Center (FPDC) in Juno Beach, Florida. The FPDC gives us the capability to monitor every fossil-fueled plant in the FPL system. We can compare the performance of like components on similar generating units, determine how we can make improvements and prevent problems before they occur. Live video links can be established between the FPDC and plant control rooms to immediately discuss, prevent and solve problems. Last year, FPL was presented with an Industry Excellence Award from the Southeast Electric Exchange for the FPDC. The proposed Martin Unit 8 and Manatee Unit 3 combined cycle projects will be connected to the FPDC.

IV. MARTIN COMBINED CYCLE EXPANSION PROJECT

A. Site Description

Q. Please describe the existing facilities at the Martin Plant site.

A. The Martin Plant has reliably supplied electric power to FPL's residential, commercial and industrial customers since 1980, when Unit 1 began operation. The Martin Plant site occupies 11,300 acres near Indiantown, Florida. A vicinity map of the Martin Plant site is presented on Document WLY-3.

The generating capacity of the Martin Plant has increased over the years through the addition of new units to meet increasing demand for electricity.

Generating units at the Martin Plant site (and their current net peak summer capacity) presently include: Units 1 (824 MW) and 2 (816 MW), each are residual oil/natural gas-fired steam units; Units 3 and 4 (natural gas-fired combined cycle units, each with a peak summer capability of 474 MW) and Units 8A and 8B (natural gas-fired/light oil, simple cycle combustion turbines, each with a peak summer capability of 159 MW). The Martin Plant site currently has a total summer net generating capability of approximately 2,906 MW. The site includes a 6,800-acre cooling pond that serves Units 1, 2, 3, and 4.

Q. Has the Martin Plant site previously been identified for unit expansion?

A. Yes. The Martin Plant site has long been identified as a possible site for additional generating capacity. When site certification for Units 3 and 4 was issued in 1991, the Governor and Cabinet, acting as the Siting Board, also recognized the Martin Plant site's suitability for further capacity expansions. The Martin Plant site has continued to be identified as a preferred location for additional generating capacity in each of FPL's Ten Year Power Plant Site Plans for the past decade.

Q. Please discuss the proposed location of Martin Unit 8 relative to the existing units on-site.

A. The project boundary for the Martin Unit 8 project is shown on Document WLY-4. The portion of the Martin Plant site that will be occupied by temporary and permanent project facilities comprises approximately 44 acres within the defined project area of approximately 110 acres. The entire project area is within the existing certified portion of the site. Existing Units 1, 2, 3, and 4 will remain in operation and will not be impacted by the project.

The location of the new combined cycle Unit 8 at the existing Martin Plant site and the selection of the combined cycle technology will maximize the beneficial use of the site while minimizing environmental, land use, and cost impacts otherwise associated with development of a 1,107-MW power plant. The Project will utilize a number of existing facilities, while increasing the generating capacity of the site without increasing the overall size of the site.

B. Martin Unit 8 Project

Q. Please describe the proposed Martin Unit 8 project in more detail.

A. The Project involves construction of two new CTs (Units 8C and 8D) and addition of four HRSGs and an STG to use the new and existing CTs (Units 8A and 8B) in a combined cycle configuration. The arrangement resulting from the marriage of new and existing CTs is shown in Document WLY-5.

Unit 8 will be a 4x1 combined cycle unit consisting of four (4) 159-MW GE "F" Class advanced CTs, with dry low NO_x combustors and four (4) HRSGs, which will utilize the waste heat from the CTs to produce steam to be utilized in a new STG. By utilizing the otherwise wasted heat from the CTs in four new HRSGs, the resulting combined cycle unit will be much more efficient than the existing Martin 8A & 8B simple cycle CTs.

Each CT unit will utilize inlet air evaporative cooling. Direct inlet fogging systems achieve adiabatic cooling using water to form fine droplets (fog). The result of the fogging is a cooler, more moisture-laden air stream. This allows additional power to be produced more efficiently. For the GE Frame 7FA CT, an 8°F average decrease in temperature would result in a 3.0 percent increase in power and an associated 1.2 percent decrease in heat rate. Thus, while power increases, the production of power is more efficient with lower emissions per mWh generated.

The inlet foggers would normally be utilized when the ambient air temperature is greater than 60°F. Since the average annual temperature for the Martin site is approximately 75°F, the output and heat rate benefits of fogger operation are included in the base rating of Unit 8.

Duct burners are also proposed for each HRSG. The duct burners can be fired during peak demand periods to add an additional 96 MW of capacity to the unit at an incremental heat rate of 8,770 Btu/kWh.

An additional 27 MW of output can also be achieved by raising the fuel flow to the CT for "peak firing mode" operation. Peak firing reduces the heat rate of the entire unit and the expected incremental heat rate for peak firing is 5,600 Btu/kWh. However, peak firing will shorten the normal replacement period for some CT components, so it will normally be reserved for peak need periods and not routinely dispatched ahead of duct firing - even though the incremental heat rate for this mode of operation is less than the incremental heat rate for all forms of fossil power generation.

Martin Unit 8, with a summer generating capacity of approximately 1,107 MW (net), will be among the most efficient electric generators in Florida. It will result in a summer net increase of approximately 789 MW in the Martin Plant site's capacity. The expected operating characteristics of Martin Unit 8 are shown in Document WLY-6.

Q. Please describe the potential air emissions of the Martin Unit 8 project.

A. Protecting the environment while providing safe, reliable and adequate power to customers is of great importance to FPL. FPL's Martin Plant will continue to comply with all applicable regulatory standards through construction and operation of Martin Unit 8.

The project will have lower overall impacts than were previously reviewed and found acceptable in the 1991 "ultimate site capacity" certification for the

Martin Plant site. The use of clean fuels and combustion controls will minimize air emissions from Martin Unit 8 and ensure compliance with applicable emission-limiting standards. Using clean fuels minimizes emissions of sulfur dioxide, particulate matter and other fuel-bound contaminants. Combustion controls similarly minimize the formation of nitrogen oxides (NO_x) and the combustor design will similarly limit the formation of carbon monoxide and volatile organic compounds. When firing natural gas, NO_x emissions will be controlled using dry-low NO_x (DLN) combustion technology and SCR, which will limit NO_x emissions to 2.5 ppmvd (@ 15% O_2 on natural gas). Water injection and SCR will be used to reduce NO_x emissions during CC operation when firing light oil. These design alternatives maximize control of air emissions while balancing economic, environmental, and energy impacts, consistent with regulatory requirements for emission rates reflecting use of the "best available control technology". Taken together, the design of Martin Unit 8 will incorporate features that will make it one of the most efficient and cleanest power plants in the State of Florida.

C. Fuel Supply – Access and Availability

Q. How will fuel be supplied for the Martin Unit 8 project?

A. The project is capable of utilizing two fuel types: natural gas and light oil. Two natural gas lines currently service the Martin site; one of which serves as an oil and gas transport pipeline for the existing Martin Units 1&2. This dual-service pipeline is not utilized for gas transport to the existing Martin Units 3 & 4, nor would it be for the new Unit 8, due to potential fuel contamination issues caused by oil residue in the pipeline. The other existing natural gas pipeline is not adequate to supply the entire demands of Martin Units 3, 4 and 8, so an additional lateral will be required to ensure sufficient supply of natural gas to the Martin site during peak periods. Potential gas suppliers with permitted mainlines running adjacent to FPL's property, such as Gulfstream and FGT, would independently undertake the necessary permitting and construction activities for this new lateral. No on-site storage will be provided for natural gas.

Light oil will be trucked to the site and stored in the existing 2 million-gallon tank and a new 2-million-gallon tank.

D. Water Supply – Access and Availability

Q. What are the water requirements for the Martin Unit 8 project and how will they be met?

A. The overall water balance for the Martin site is shown on Document WLY-7. Primary water uses for Martin Unit 8 will be for condenser cooling, combustion turbine inlet foggers, steam cycle makeup and service water. Water will also be used on a limited basis for NO_x control when utilizing light oil. Condenser cooling for the steam cycle portion of Unit 8 will be accomplished with water from the existing cooling pond. Service and process water for the Project will come from the cooling pond. Make up to the pond will continue to come from the St. Lucie Canal in accordance with the current South Florida Water Management District consumptive use allocation for the site.

E. Electric Transmission Facilities

Q. How will the Martin Unit 8 project be interconnected to FPL's transmission network?

A. The electricity generated by Martin Unit 8 will interconnect with FPL's existing transmission network at the Martin site's existing system substation.

Q. Does FPL plan any transmission system upgrades in conjunction with the Martin Unit 8 project?

A. Yes. FPL plans to make certain upgrades to its existing transmission system to ensure system reliability. New transmission lines will be added between the Martin system substation and the Indiantown substation and between the Indiantown substation and the Bridge substation. As shown in Document WLY-8, these lines will require approximately 8.5 miles of new right of way. Also, existing transmission line between Cedar substation and Ranch substation will be upgraded since Manatee Unit 3 is being added. These lines will carry electricity generated at the Martin Plant, as well as electricity generated elsewhere, as is characteristic of the electric grid. System upgrades such as this, which occur beyond the initial connection to the transmission network at the on-site system substation, are "integration" facilities as distinct from "interconnection" facilities.

F. Proposed Construction Schedule

Q. What is the proposed construction schedule for the Martin Unit 8 project?

A. A summary of construction milestone dates is shown on Document WLY-9. FPL will begin construction upon receipt of the necessary federal and state certifications and permits. Based on our experience constructing Martin Units 3&4 and the rate of progress with our current construction projects at our Fort Myers and Sanford plants, the expected construction duration for the Martin Unit 8 project is 24 months. Therefore, with a planned in-service date of June 2005 to help meet FPL's load requirements, FPL anticipates that construction needs to commence on or before June 1, 2003.

G. Estimated Construction Costs

Q. What does FPL estimate that the Martin Unit 8 project will cost?

A. The expected total installed cost for the Martin Unit 8 project is $473 million (2005 dollars), which was used in FPL's economic analyses. This cost includes $374 million for the power block, $7 million for the transmission interconnection, $30 million for transmission integration (including $13 million for the Cedar-Ranch line), and $62 million in allowances for funds used during construction (AFUDC) to an in-service date of June 2005. The components of this total project cost are shown in Document WLY-10.

V. MANATEE COMBINED CYCLE EXPANSION PROJECT

A. Site Description

Q. Please describe the existing facilities at the Manatee Plant site.

A. As shown on Document WLY-11, the Manatee Plant is located in Manatee County, just east of Parish, Florida. The plant was originally constructed in the mid 1970s, with the commercial in-service dates for Units 1 and 2 in October 1976 and December 1977, respectively.

The peak summer capacity (net) of the existing units are as follows:

- Unit 1 – 815 MW (peak summer capacity)
    - Steam electric generating unit firing residual oil
- Unit 2 – 810 MW (peak summer capacity)
    - Steam electric generating unit firing residual oil

Q. Is the Manatee site suitable for the Manatee Unit 3 project?

A. Yes. The location of the new combined cycle Unit 3 at the existing Manatee Plant site and the selection of the combined cycle technology will maximize the beneficial use of the site while minimizing environmental, land use, and cost impacts otherwise associated with development of a 1,107-MW power plant. The new CTs and associated HRSGs will be located in an area that has already been affected by existing uses at the plant. The Project will utilize a number of existing facilities, while increasing the generating capacity of the site without increasing the overall size of the site.

B. Manatee Unit 3 Project

Q. Please describe the Manatee Unit 3 project in more detail.

A. The Project will be located west of the existing Units 1 and 2 on the existing 9,500-acre Manatee Plant site. Exhibit WLY-12 presents the boundary of the Project area, which comprises approximately 73 acres. The new CTs and associated HRSGs will be located in an area that has already been affected by existing uses at the plant.

The proposed Manatee Unit 3 will be a 4x1 combined cycle unit consisting of four (4) 159-MW GE "F" Class advanced CTs, with dry low NO_x combustors and four (4) HRSGs, which will utilize the waste heat from the CT to produce steam to be utilized in a new steam turbine generator. The proposed power block arrangement is shown on Document WLY-13.

Like Martin Unit 8, the inlets of each combustion turbine will be outfitted with an evaporative cooling (fogging) system. Based on the average annual temperature for the Manatee site, the output and heat rate benefits associated with fogger operation are included in the base rating of Manatee Unit 3.

Duct burners are also proposed for each HRSG. The duct burners can be fired during peak demand periods to add an additional 96 MW of capacity to the base unit at an incremental heat rate of 8,770 Btu/kWh.

An additional 27 MW can also be achieved by raising the fuel flow to the CT for "peak firing mode" operation. Since peak firing reduces the heat rate of the entire unit, the expected incremental heat rate for peak firing is 5,600 Btu/kWh. However, peak firing will shorten the normal replacement period for some CT components, so it will normally be reserved for peak need periods and not routinely dispatched ahead of duct firing.

Manatee Unit 3 will have a total peak summer generating capacity of 1,107 MW (net). The expected operating characteristics of Manatee Unit 3 are shown in Document WLY-14.

Q. Please describe the potential air emissions of the Manatee Unit 3 project.

A. FPL's Manatee Plant will continue to comply with all applicable regulatory standards through construction and operation of Manatee Unit 3.

The use of natural gas and combustion controls will minimize air emissions and ensure compliance with applicable emission-limitation standards. Using natural gas minimizes emissions of sulfur-dioxide, particulate matter and other fuel-bound contaminants. Combustion controls similarly minimize the formation of NO_x and the combustor design will similarly limit the formation of carbon monoxide and volatile organic compounds. NO_x emissions will be controlled using dry-low NO_x combustion technology and SCR, which will limit NO_x emissions to 2.5 ppmvd (@ 15% O_2 on natural gas). The design of Manatee Unit 3 will incorporate features that will make it one of the most efficient and cleanest power plants in the State of Florida.

C. Fuel Supply – Access and Availability

Q. How will fuel be supplied for the Manatee Unit 3 project?

A. The CTs and HRSG duct burners will fire natural gas, which will be transported to the Project through a pipeline. FPL has an agreement with Gulfstream Natural Gas Pipeline System (Gulfstream) to supply natural gas for the existing Manatee Plant Units 1 and 2, and a new lateral from the Gulfstream main line into the Manatee Plant site is planned for that purpose. Natural gas for Manatee Unit 3 may be supplied by this new lateral or from another gas supplier which would independently undertake the necessary permitting and construction activities. No on-site storage will be provided for natural gas. FPL does not presently intend to provide the capability for Manatee Unit 3 to be fired with oil.

Q. Could you elaborate as to why Manatee Unit 3 will not be designed with the capability to utilize low sulfur oil?

A. Yes. The added reliability of dual natural gas suppliers and multiple pipelines in the Manatee area reduces the importance of an alternative fuel source..

FPL has not selected a gas supplier for Manatee Unit 3 at this time. One potential source of natural gas for Manatee Unit 3 will be the Gulfstream lateral to Manatee Units 1 & 2 that was just discussed. Natural gas for Manatee Unit 3 may be supplied by this new lateral or from another gas supplier, which would undertake the necessary permitting and construction for the lateral.

As shown in Document WLY-15, when Phase I of the Gulfstream system is completed in June of 2002, Gulfstream will have two interconnections with the Florida Gas Transmission (FGT) Pipeline System. One interconnection is in Hardee County, with a design capacity of 300,000 MMBTU/day, and one interconnection is in Osceola County, with a design capacity of 200,000 MMBTU/day. These two interconnections, under normal conditions, will flow natural gas from the Gulfstream system into FGT. However, under unusual situations, when Gulfstream is unable to serve the State of Florida in general or the Manatee site in particular, the flow from these two interconnections can be reversed, and natural gas can flow from the FGT system into the Gulfstream system. With the Hardee County interconnect only 29 miles from the Manatee plant, FPL will have the capability to receive natural gas from FGT, from either the Hardee County or Osceola County interconnect, should the Gulfstream system not be able to receive natural gas from its source into Florida.

D. Water Supply – Access and Availability

Q. What are the water requirements for the Manatee Unit 8 project and how will they be met?

A. The water supply for the Manatee project will be similar to that of the Martin project, in that water will be obtained from an existing 4,000-acre cooling pond. With makeup provided from the Little Manatee River, this cooling pond will continue to be the source of cooling, service and process water for the Manatee Plant after the addition of Unit 3. Total site consumptive use will continue to be in accordance with the current Southwest Florida Water Management District water use agreement. The overall water balance for the Manatee Plant, including Unit 3, is shown in Document WLY-16.

E. Electric Transmission Facilities

Q. How will the Manatee Unit 3 project be interconnected to FPL's transmission network?

A. The Project will connect to the existing on-site system substation via a new tie line. The existing on-site system substation will be expanded to accommodate the new interconnection to FPL's electric transmission system.

Q. Does FPL plan any transmission system upgrades in conjunction with the Manatee Unit 3 project?

A. Yes. In addition to the on-site tie line, load flow analysis suggests that an upgrade to the existing transmission network will be required to maintain system reliability when the new generation is dispatched to serve FPL's customers. FPL will upgrade its existing electrical transmission system by adding a new 230-kV transmission line between the existing Manatee system substation and FPL's existing Johnson substation in Manatee County. The transmission line will be located entirely within an existing FPL transmission line right-of-way containing other 230-kV lines. This new transmission line will be an "integration" facility.

F. Proposed Construction Schedule

Q. What is the proposed construction schedule for the Manatee Unit 3 project?

A. Manatee Unit 3 will be a sister to Martin Unit 8, so the expected construction duration will also be 24 months. With a planned in-service date of June 2005 to help meet FPL's load requirements, FPL anticipates that the Manatee Unit 3 construction will need to commence on or before June 1, 2003.

A summary of the construction milestone dates is shown on document WLY-17. The milestone dates are similar to those for Martin Unit 8, with the exception of the initiation of the combustion turbine orders, since the Manatee Unit 3 project will be ordering two more combustion turbines than will the Martin Unit 8 project.

G. Estimated Construction Costs

Q. What does FPL estimate that the Manatee Unit 3 project will cost?

A. The expected total installed cost for the Martin Unit 8 project is $566 million (2005 dollars), which was used in the RFP analysis. This cost includes $466 million for the power block, $10 million for the transmission interconnection, $13 million for transmission integration, and $77 million in allowances for funds used during construction (AFUDC) to an in-service date of June 2005. The components of this total project cost are shown in Document WLY-10.

VI. CONSEQUENCES OF DELAY

Q. What would the consequences be if the need determination for either project were delayed?

A. In order to achieve our reliability criteria for summer 2005, FPL has set an in-service date of June 2005 for both projects. Each project has a projected twenty-four month construction schedule, which dictates that construction begin on or before June 1, 2003. FPL could expect to receive a site certification for each project on or about May 1, 2003, with the air permit to be issued concurrently or shortly after site certification. With less than one month between the expected date upon which all approvals should be received, and the actual date that construction must begin to support a June 2005 in-service date, it is imperative that the FDEP receive all agency reports in a timely matter.

Based on FPL's experience with the FDEP site certification process and the FDEP's current schedule for the Martin Unit 8 siting application, FPL needs the Commission to work towards issuing a Need Decision and agency report to the FDEP by July 22, 2002.

If the licensing of the project is delayed beyond June 1, 2003, FPL likely will not be able to meet its system reliability criteria in 2005. Also, FPL customers would be denied low cost energy that should lower their bills.

VII. CONCLUSION

Q. What level of confidence does FPL have in the cost projections and construction schedules discussed herein.

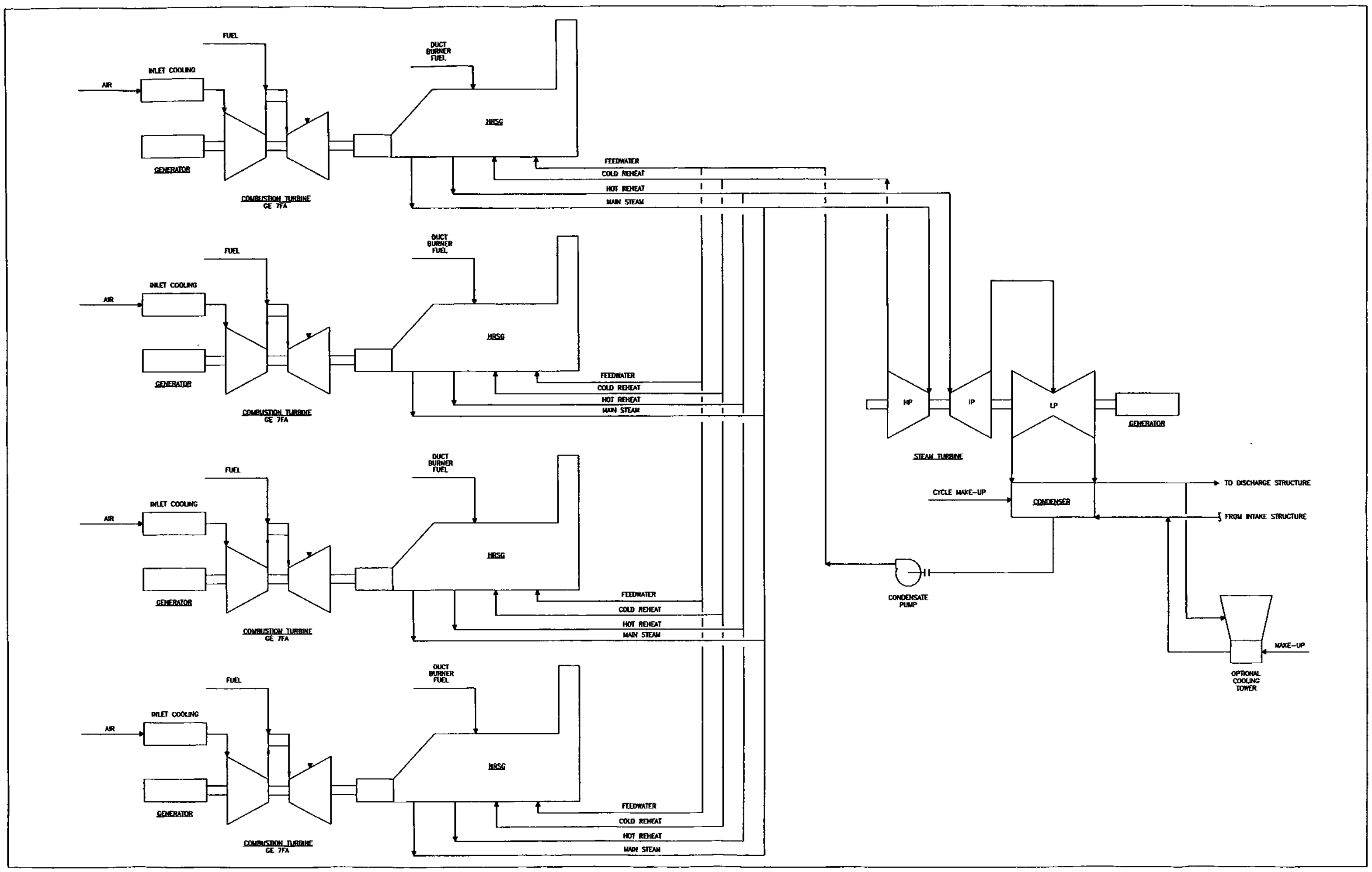
A. In establishing the construction schedule logic and capital cost estimates for theses projects, FPL has drawn upon its design and construction experience in Florida. We are confident that our current design philosophy and construction processes will allow us to complete these projects in accordance with the expected construction costs presented above, which are shown by our analyses to be the best alternatives for the customer.

Q. Please summarize your testimony.

A. FPL's Martin Unit 8 and Manatee Unit 3 projects will utilize highly efficient low-emission combined cycle technology, with which FPL has a great deal of experience building and operating. FPL is confident in the accuracy of our construction cost estimates and projected unit capabilities.

The Martin and Manatee sites are ideal locations for these projects because of the existing electric generating plant, gas transmission and electric transmission infrastructure, and minimal incremental environmental impacts compared to "greenfield" sites. There are no water supply, fuel supply, transmission or other constraints that will interfere with FPL's ability to successfully construct and operate either facility.

TYPICAL 4X1 CC UNIT PROCESS DIAGRAM



FPL OPERATIONAL COMBINED CYCLE POWER PLANTS

Facility	Location	In-Service Year	Technology	Capacity (MW)	Primary Fuel
Lauderdale 4 & 5	FL	1993	(2) – 2x1 combined cycle	854	Natural gas
Martin 3 & 4	FL	1994	(2) – 2x1 combined cycle	948	Natural gas
Putnam 1 & 2	FL	1976	(2) – 2x1 combined cycle	498	Natural gas
Total Combined Cycle Capacity - Summer (net) ➔				2,300	

FPL COMBINED CYCLE CONSTRUCTION PROJECTS IN PROGRESS

Project	Technology	Capacity (MW)	Primary Fuel
Fort Myers Repowering	6x2 combined cycle	1,530	Natural gas
Sanford Unit 4 & 5 Repowering	(2) – 4x1 combined cycle	2,018	Natural gas
Total Combined Cycle Capacity - Summer (net) ➔		3,548	

MARTIN PLANT VICINITY MAP

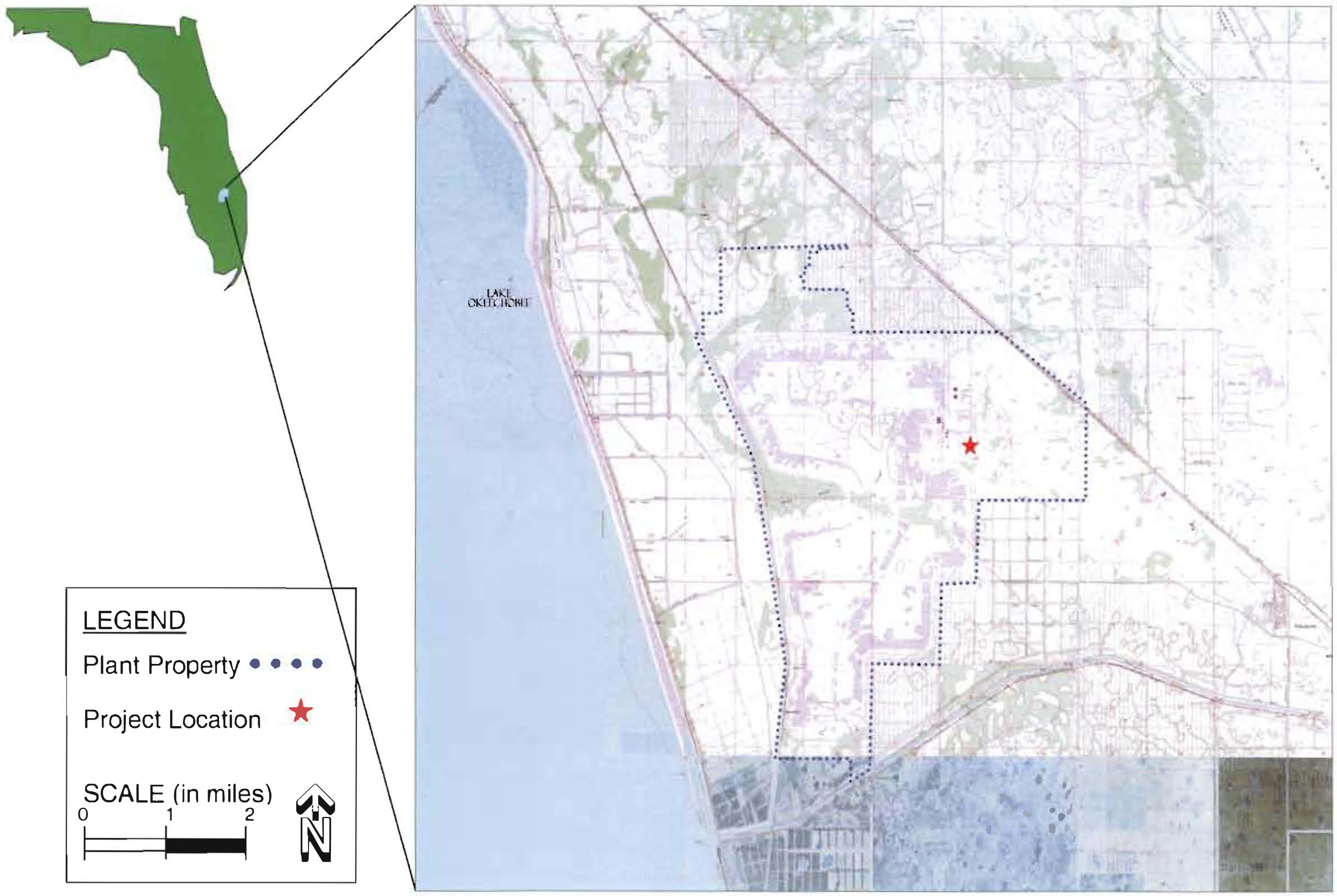
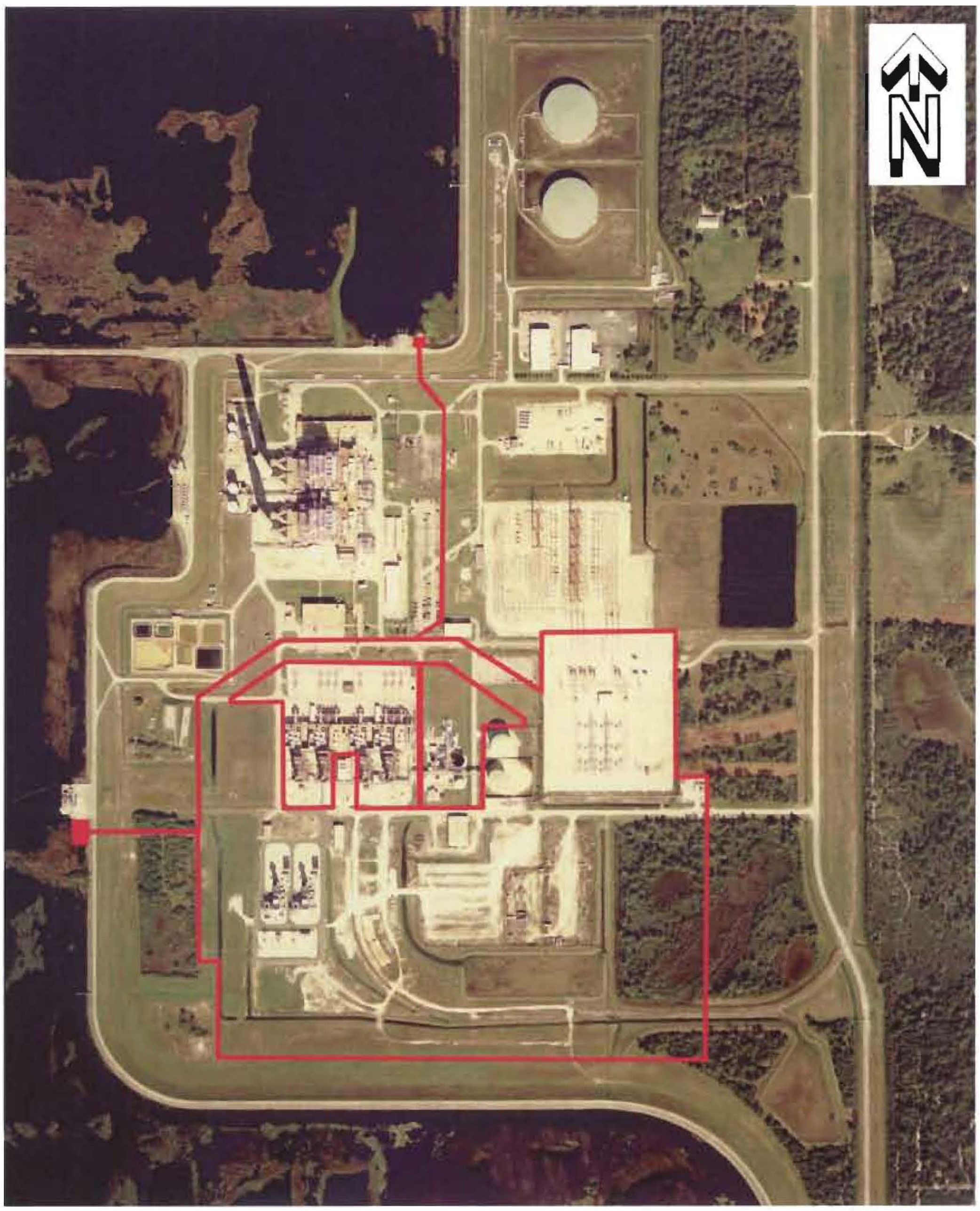


Exhibit ___
Document WLY-3

Exhibit __
Document WLY-4

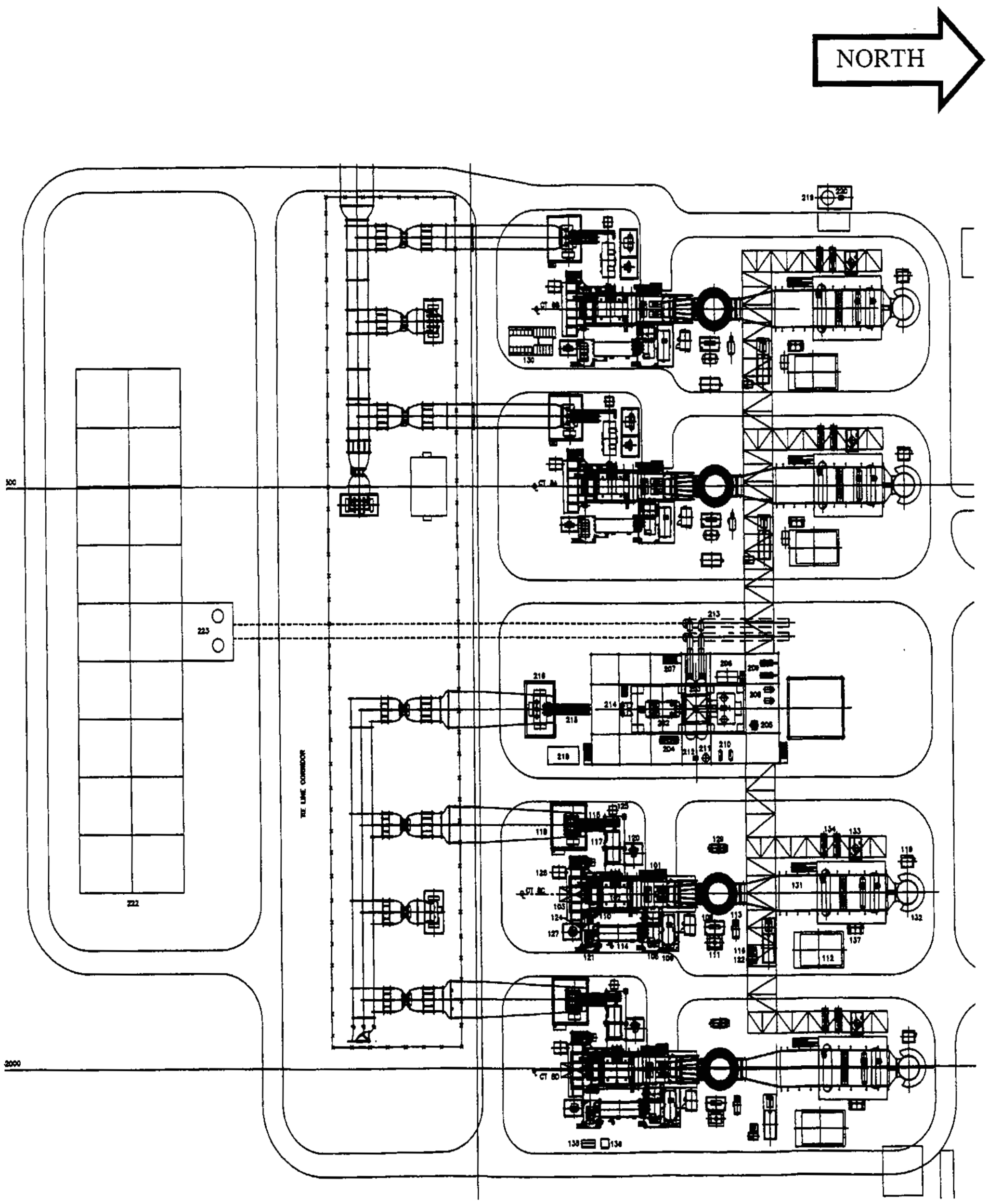
MARTIN UNIT 8 PROJECT BOUNDARY



FPL
Martin Unit 8

Exhibit __
Document WLY-5

MARTIN UNIT 8 TYPICAL POWER BLOCK AREA



FPL

Martin Unit 8

Exhibit __
Document WLY-6

MARTIN UNIT 8 FACT SHEET

Generation Technology - "Four on One" (4x1) Combined Cycle Configuration:

- Four (4) → GE 7FA Combustion Turbines w/ Inlet Foggers (Two currently on-site operating in simple-cycle mode)
- Four (4) → Heat Recovery Steam Generators with Duct Burners and Selective Catalytic Reduction System for NO_x Control
- One (1) → Single-Reheat Steam Turbine

Expected Plant Peak Capacity:

Summer (95°F / 50% RH)	1,107 MW
Winter (35°F / 60% RH)	1,197 MW

Projected Unit Performance Data:

Forced Outage Rate (EFOR)	1%
Scheduled Maintenance Outages	1 wk/yr (2% POF)
Equivalent Availability Factor (EAF)	97%
Base Average Net Operating Heat Rate @ 75°F / 60% RH	6,850 Btu/kWh (HHV)
Annual Fixed O&M – incremental (2001 dollars)	$1.87/kW-yr
Variable O&M – excluding fuel (2001 dollars)	$0.037/MWh

Fuel Type and Base Load Typical Usage @ 75°F:

Primary Fuel	Natural Gas
Natural Gas Consumption	6,580,000 scf/hr
Alternate Fuel	Low Sulfur Light Oil
Light Oil Consumption	60,000 gal/hr

Expected Base Load Air Emissions Per Train @ 75°F:	Natural Gas	Light Oil
NO_x (@ 15% O_2)	2.5 ppmvd	12 ppmvd
CO	9 ppmvd	20 ppmvd
PM_{10}	10.9 lb/hr	36.2 lb/hr
SO_2	9.4 lb/hr	94.9 lb/hr

Water Balance:

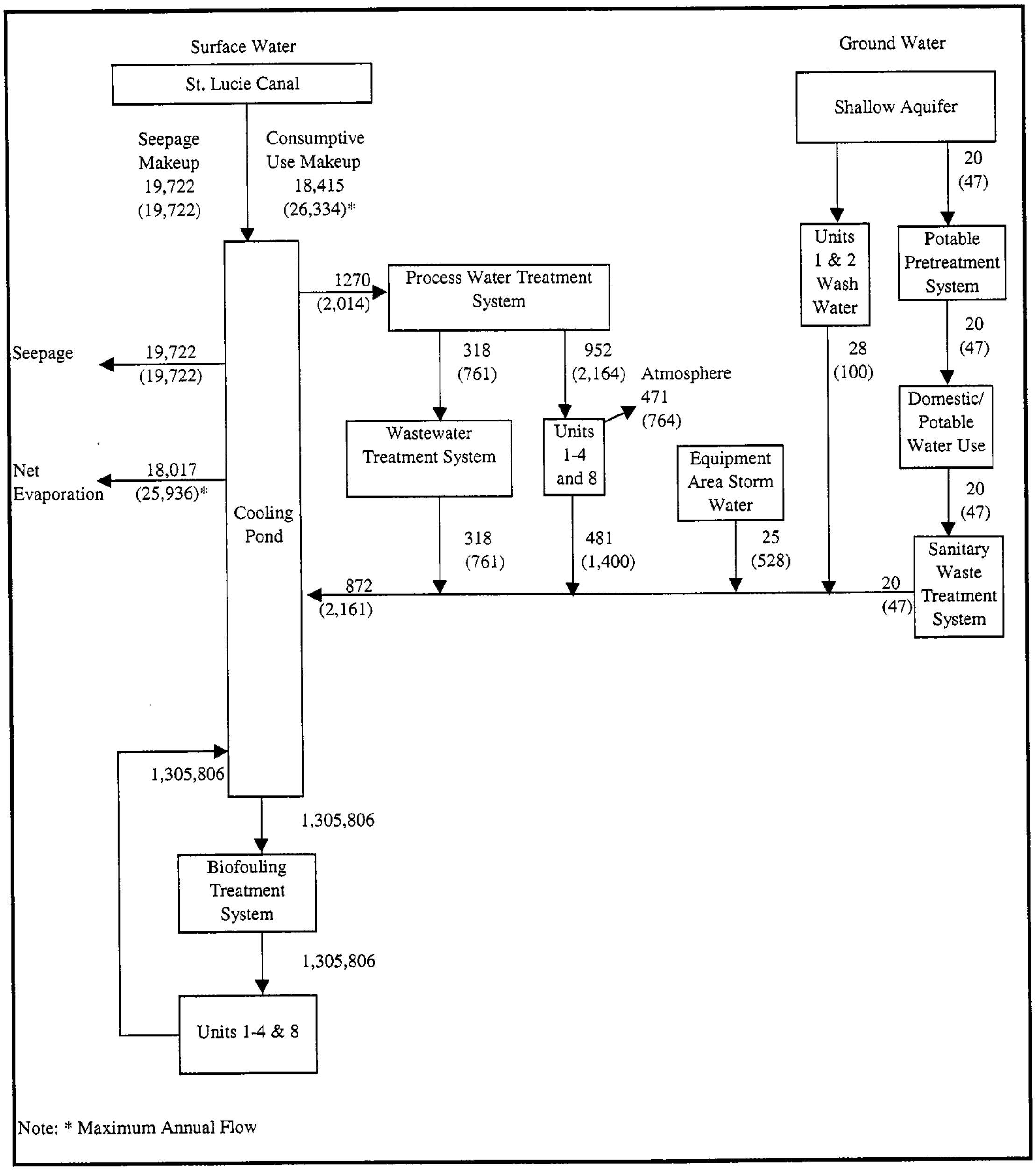
- Total site consumptive use will continue to be within current SFWMD annual allocation
- Process wastewater recycled to cooling pond

Linear Facilities:

- 8.5 miles of new 230 kV transmission right of way
- Two (2) FGT gas laterals currently supply Martin site; possibility of contracting with another supplier
- No light oil pipeline – light oil delivered to site by truck

Exhibit __
Document WLY-7

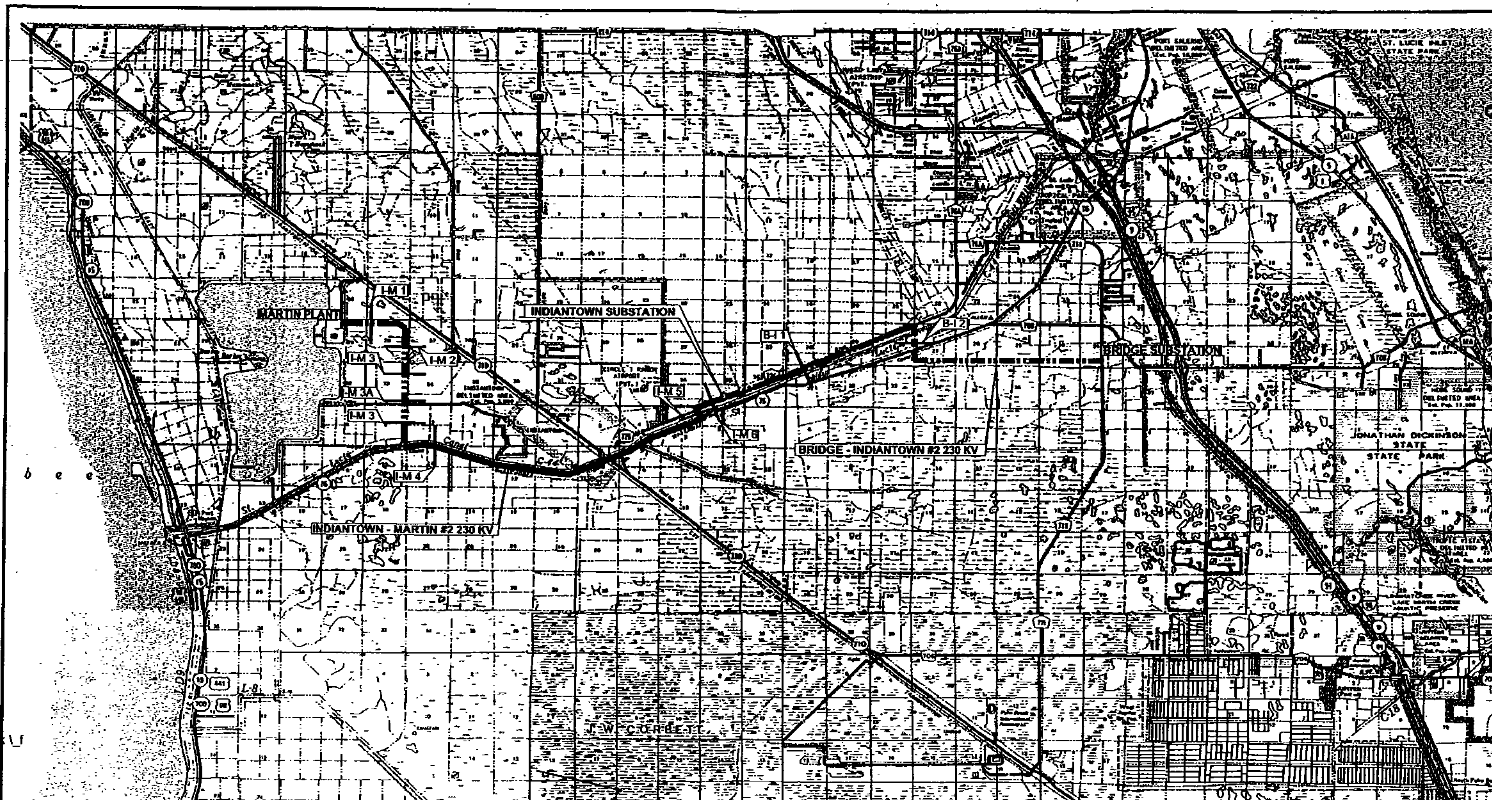
OVERALL WATER BALANCE FOR THE MARTIN SITE



All Flows in gpm; Maximum Instantaneous Flows in Parentheses
Source: Black & Veatch, 2001; FPL, 2001; Foster Wheeler Environmental Corporation

FPL
Martin Unit 8

Exhibit __
Document WLY-8



LEGEND:

- PROJECT CORRIDOR (TO BE CERTIFIED)
- CROSS SECTION #
- NEW 230 kv LINE ALONG EXISTING ROW (NOT TO BE CERTIFIED)

RESOURCES:

GENERAL HIGHWAY MAP, MARTIN COUNTY, FLORIDA, U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION, AUGUST 1985.

GENERAL HIGHWAY MAP, PALM BEACH COUNTY, FLORIDA, U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION, AUGUST 1975 (SHEETS 1 & 2).

Golder Associates
Tampa, Florida

SCALE	1:126720	TITLE	PROJECT CORRIDOR LOCATION
DATE	1/27/02		
DESIGN	RAZ		
CADD	DM		
FILE No.	0137609A012 FIG 6_1_2	CHECK	
PROJECT No.	0137609-1502 REV. 0	REVIEW	MARTIN UNIT 8

Exhibit __
Document WLY-9

MARTIN UNIT 8

EXPECTED CONSTRUCTION SCHEDULE

	Begin	End
Initiate sequence of HRSG orders (LNTP x 4)	Jul 02	Sep 02
Initiate sequence of combustion turbine orders (LNTP x 2)	Aug 02	Oct 02
Issue LNTP for steam turbine		Sep 02
Receive approvals necessary to begin construction		May 03
Site Prep & Foundations	Jun 03	Jan 04
Balance of Plant	Aug 03	Dec 04
Erect HRSGs	Feb 04	
Erect CTs	Apr 04	
Erect steam turbine	Apr 04	
Start-Up	Jan 05	May 05
Commercial operation		Jun 05

CONSTRUCTION COST COMPONENTS
(2005 $ MILLION)

	MARTIN	MANATEE
Plant	$374	$466
Transmission Interconnect	$7	$10
Transmission Integration[1]	$30	$13
AFUDC	$62	$77
Total Cost	$473	$566
Total 2005 Capacity Additions ➔	1,039	

Notes

1 One transmission system upgrade, the upgrade of the Cedar-Ranch transmission line, is needed only if both Martin Unit 8 and Manatee Unit 3 are added. If only one of the two units was added, the line upgrade would not be needed. For ease of presentation, the line was included in the Martin Unit 8 cost estimate.

MANATEE PLANT VICINITY MAP

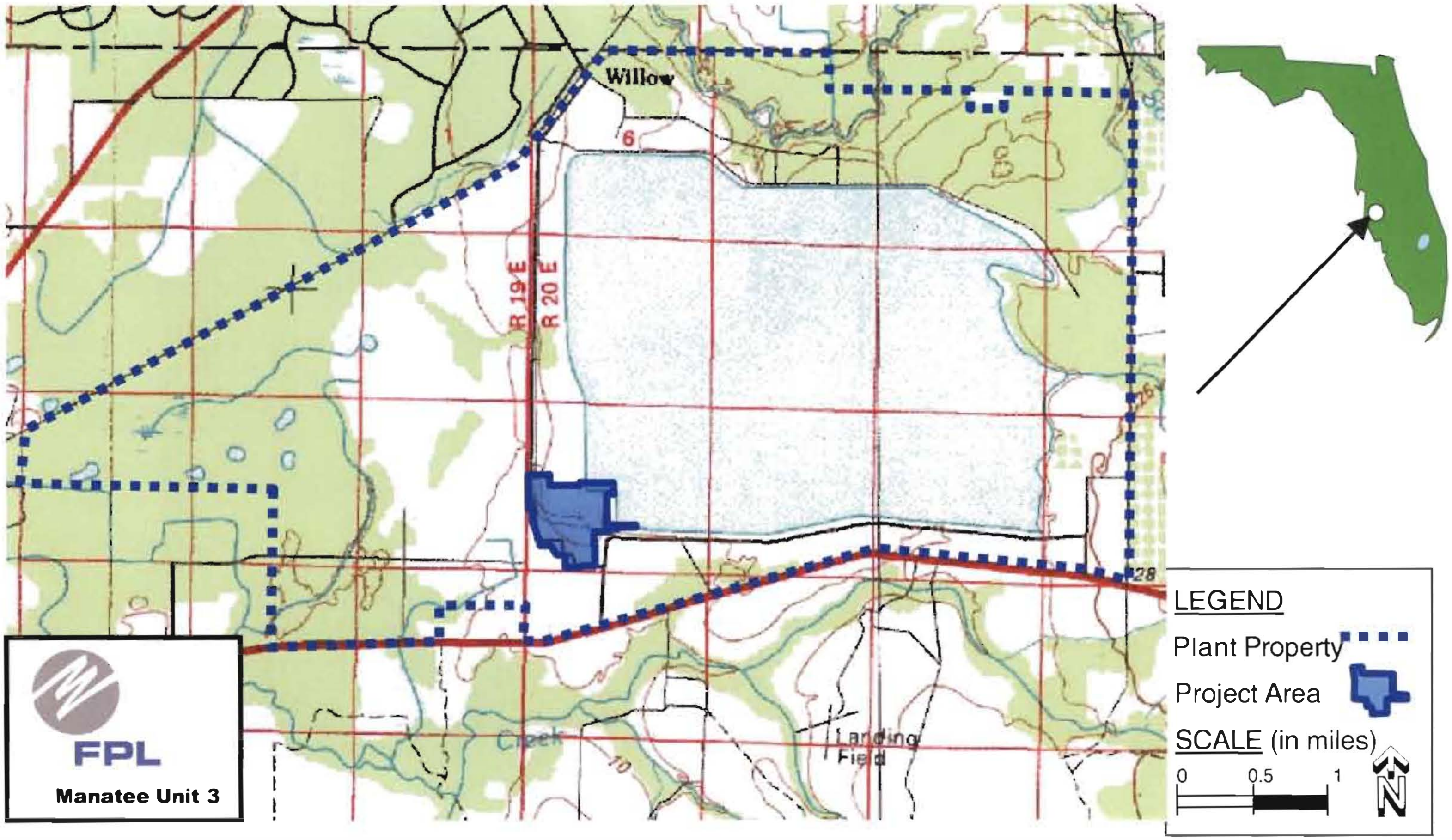
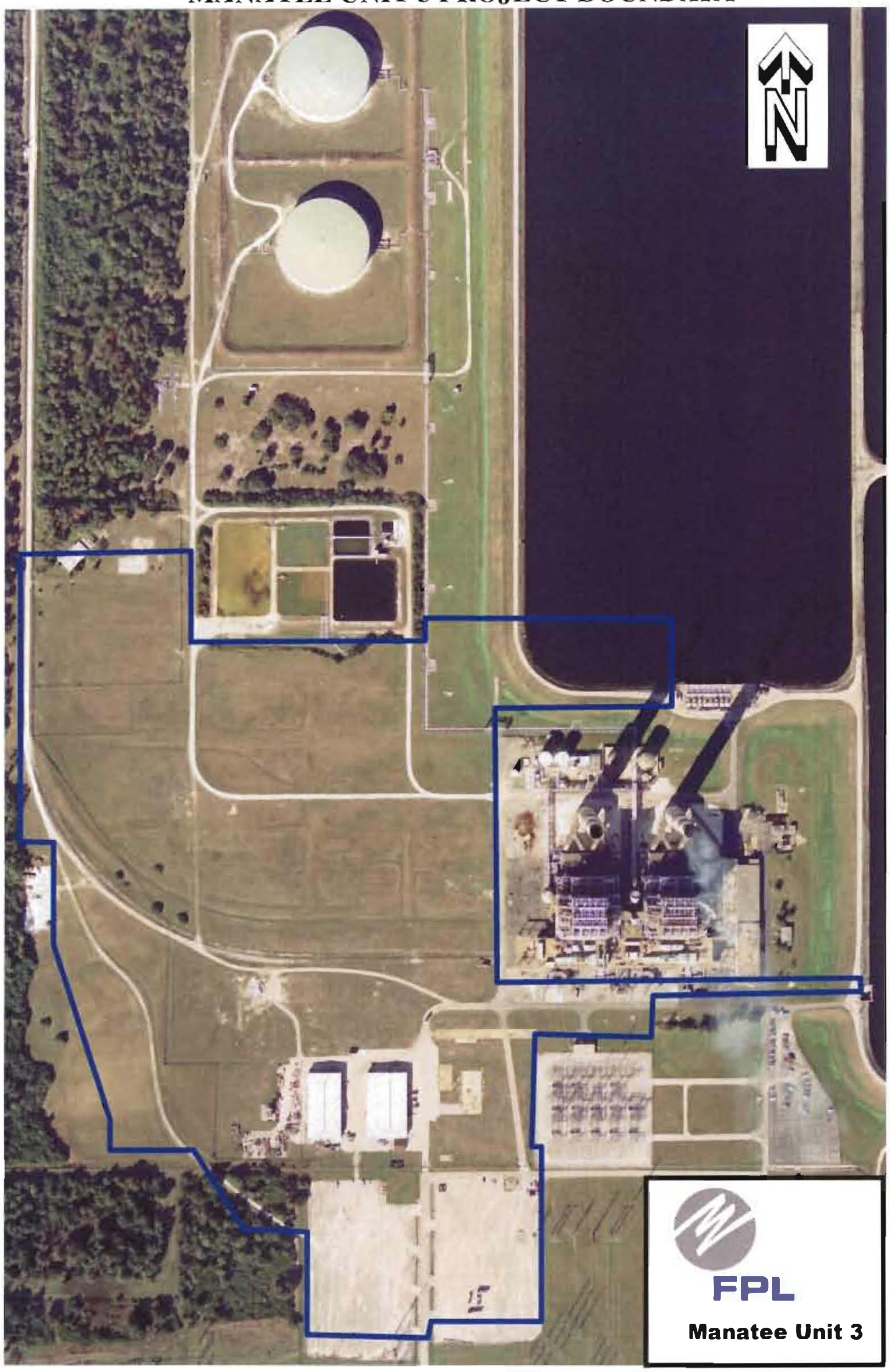


Exhibit ___
Document WLY-11

Exhibit __
Document WLY-12

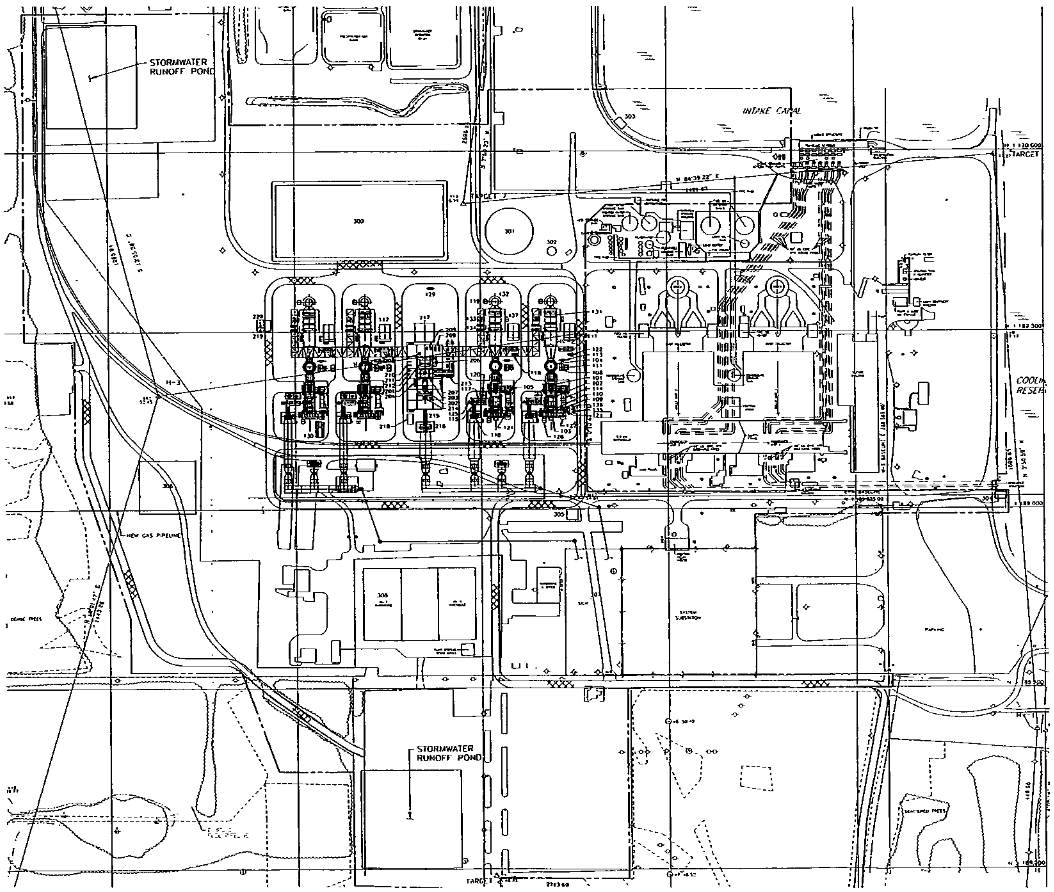
MANATEE UNIT 3 PROJECT BOUNDARY



Boundary of Manatee Expansion Project Area

Exhibit __
Document WLY-13

MANATEE UNIT 3 TYPICAL POWER BLOCK AREA



FPL
Manatee Unit 3

MANATEE UNIT 3 FACT SHEET

Generation Technology - "Four on One" (4x1) Combined Cycle Configuration:

- Four (4) ➔ GE 7FA Combustion Turbines w/ Inlet Foggers
- Four (4) ➔ Heat Recovery Steam Generators with Duct Burners and Selective Catalytic Reduction System for NO_x Control
- One (1) ➔ Single-Reheat Steam Turbine

Expected Plant Peak Capacity:

Summer (95°F / 50% RH)	1,107 MW
Winter (35°F / 60% RH)	1,197 MW

Projected Unit Performance Data:

Forced Outage Rate (EFOR)	1%
Scheduled Maintenance Outages	1 wk/yr (2% POF)
Equivalent Availability Factor (EAF)	97%
Base Average Net Operating Heat Rate @ 75°F / 60% RH	6,850 Btu/kWh (HHV)
Annual Fixed O&M – incremental (2001 dollars)	$2.71/kW-yr
Variable O&M – excluding fuel (2001 dollars)	$0.037/MWh

Fuel Type and Base Load Typical Usage @ 75°F:

Fuel	Natural Gas
Natural Gas Consumption	6,580,000 scf/hr

Expected Base Load Air Emissions Per Train @ 75°F:

NO_x (@ 15% O_2)	2.5 ppmvd
CO	9 ppmvd
PM_{10}	10.9 lb/hr
SO_2	9.4 lb/hr

Water Balance:

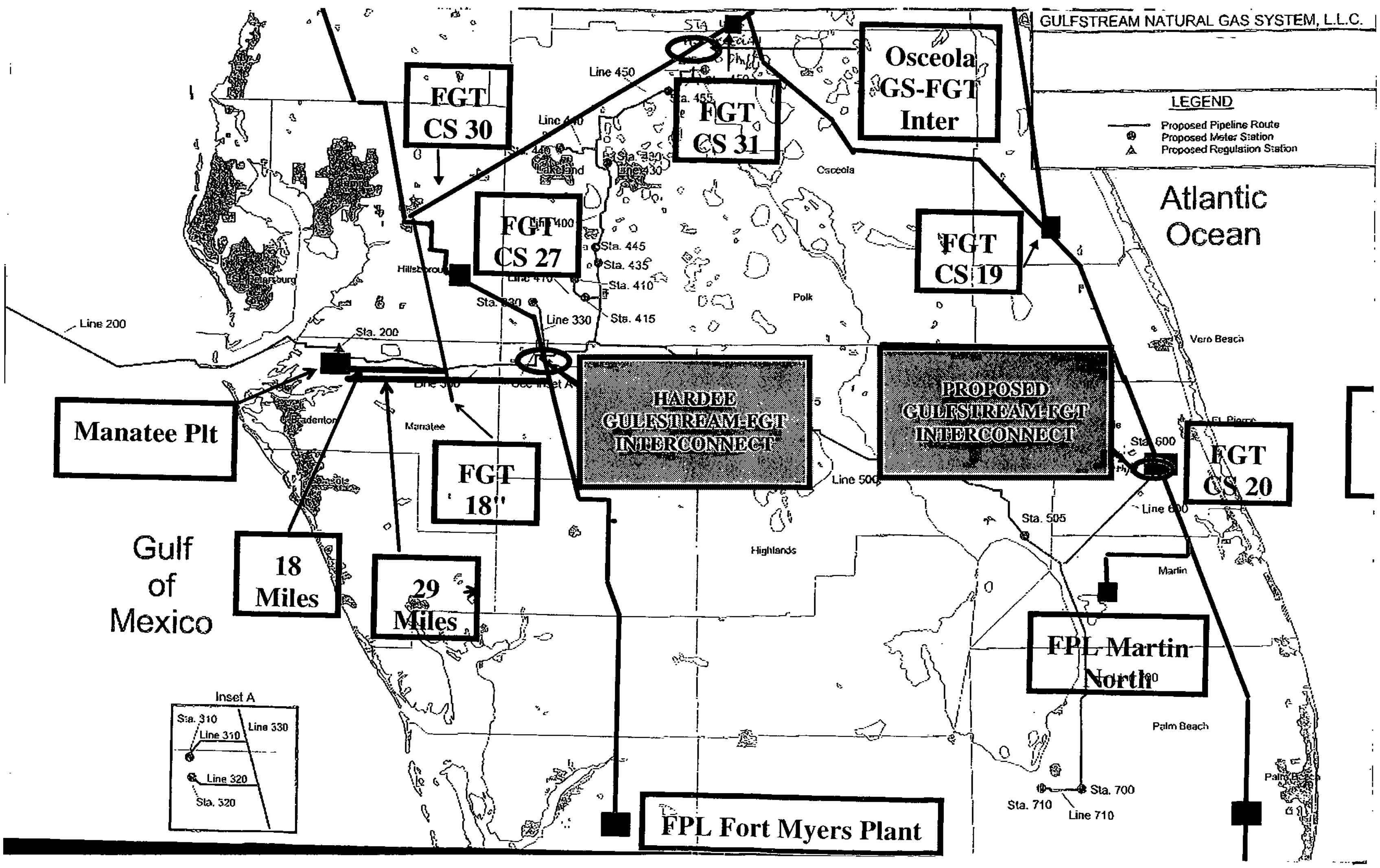
- Total site consumptive use will be within amounts currently allocated by SWFWMD
- Process wastewater recycled to cooling pond

Linear Facilities:

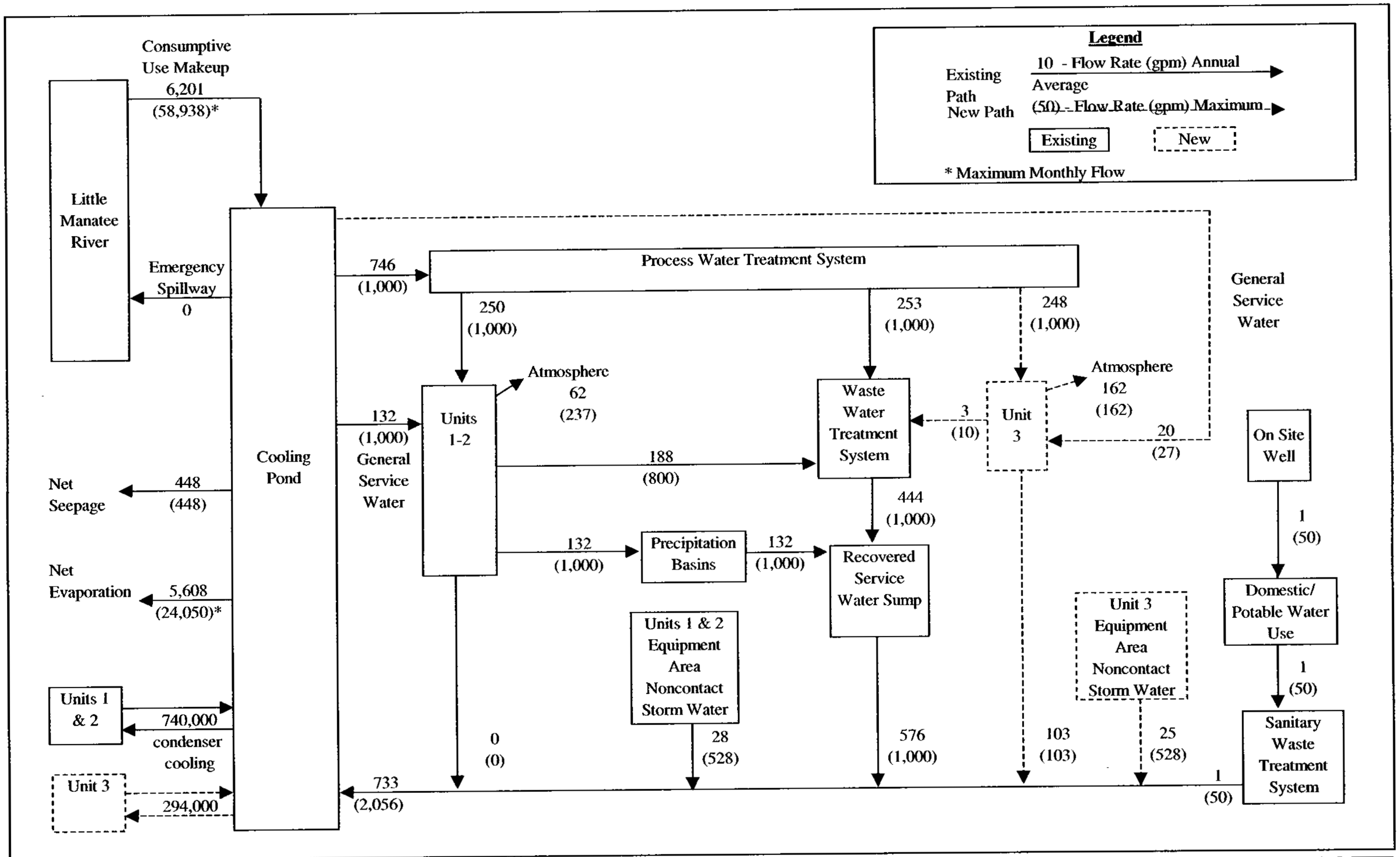
- No new transmission ROW required
- FPL has an agreement with Gulfstream Natural Gas Pipeline System (Gulfstream) to supply natural gas for the existing Manatee Plant Units 1 and 2, and a new lateral from the Gulfstream mainline into the Manatee site is planned for that purpose. Natural gas for Manatee Unit 3 may be supplied by this new lateral or from another gas supplier.

Exhibit __
Document WLY-15

MANATEE UNITS 1&2 GAS SUPPLY MAP



OVERALL WATER BALANCE FOR THE MANATEE SITE



FPL Manatee Plant Water Management Plan

Source: Foster Wheeler, 2002.

Exhibit ___
Document WLY-16

Exhibit __
Document WLY-17

MANATEE UNIT 3

EXPECTED CONSTRUCTION SCHEDULE

	Begin	End
Initiate sequence of HRSG orders (LNTP x 4)	Aug 02	Oct 02
Initiate sequence of combustion turbine orders (LNTP x 2)	Sep 02	Oct 02
Issue LNTP for steam turbine		Sep 02
Receive approvals necessary to begin construction		May 03
Site Prep & Foundations	Jun 03	Jan 04
Balance of Plant	Aug 03	Dec 04
Erect HRSGs	Feb 04	
Erect CTs	Apr 04	
Erect steam turbine	Apr 04	
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Commercial operation		Jun 05