ORIGINAL

TECO
TAMPA ELECTRIC

BEFORE THE

FLORIDA PUBLIC SERVICE COMMISSION

DOCKET NO. 07_____-EI

IN RE: TAMPA ELECTRIC'S

PETITION TO DETERMINE NEED FOR

POLK POWER PLANT UNIT 6

TESTIMONY AND EXHIBIT

OF

MICHAEL R. RIVERS

TAMPA ELECTRIC COMPANY
ORIGINAL DOCKET NO. 07_____-EI
FILED: 7/20/2007

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

PREPARED DIRECT TESTIMONY

OF

MICHAEL R. RIVERS

Q. Please state your name, business address, occupation and employer.

A. My name is Michael R. Rivers. My business address is 702 N. Franklin Street, Tampa, Florida 33602. I am employed by Tampa Electric Company ("Tampa Electric" or "company") as Director, Engineering and Construction.

Q. Please provide a brief outline of your educational background and business experience.

A. I received a Bachelor of Science Degree in Civil Engineering in 1977 from the University of Florida, and I received a Masters of Business Administration in 1989 from the University of Tampa. I am a Registered Professional Engineer in the state of Florida. In December 1981, I joined Tampa Electric as an Associate Engineer. Between 1981 and 1990 I held various engineering and construction positions. In 1990 I was promoted to Manager of Project Controls and, in 1993, I was promoted to Construction Manager for Tampa Electric's Polk Unit 1, which is the company's 255 MW integrated gasification combined cycle ("IGCC") unit. In June 1997, I was promoted to Director, Engineering and Technical Services, and in October 2002, I was promoted to Director, Engineering and Construction. My present responsibilities include the areas of engineering and construction within Tampa Electric's Energy Supply Department for major plant improvement projects and additional generating capacity.

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to describe the engineering and construction of the proposed Polk Unit 6 Project. I will describe the proposed unit's operating characteristics along with a description of the proposed facilities. Additionally, I will discuss the schedule for completing construction of Polk Unit 6 and Tampa Electric's project execution plan. Finally, I will describe the development of the reasonable and prudent Project cost estimates.

Q. Have you prepared an exhibit to support your testimony?

A. Yes, Exhibit No. ____ (MRR-1) was prepared under my direction and supervision. It consists of the following documents:

Document No. 1	Process Diagram
Document No. 2	Project Schedule
Document No. 3	Cost Estimate
Document No. 4	Plot Plan

Q. Are you sponsoring any sections of Tampa Electric's Determination of Need Study for Electrical Power: Polk Unit 6 ("Need Study")?

A. Yes. I sponsor the section of the Need Study regarding Tampa Electric's Proposed Unit. Specifically, I sponsor sections VII.A "Overview," VII.B "Description," VII.E "Cost" and VII.F "Schedule."

Q. Did you participate in Tampa Electric's evaluation of supply alternatives?

A. Yes. In addition to IGCC technology, Tampa Electric considered natural gas combined cycle and other coal fired technologies including atmospheric fluidized bed combustion and supercritical pulverized coal technologies. I provided capital costs and construction schedules for these alternatives. Witness William A. Smotherman describes the company's evaluation of alternative generating technologies, which demonstrates that the proposed IGCC unit is the most cost-effective, reliable option for Tampa Electric.

PROJECT DESCRIPTION

Q. Please describe the planned project.

A. Tampa Electric plans to make use of its extensive experience with IGCC technology to construct Polk Unit 6 ("Project"), a second IGCC power plant at Polk Station, the site of Tampa Electric's existing IGCC facility. Polk Station occupies over 2,800 acres on State Road 37 in Polk County, Florida, approximately 40 miles southeast of Tampa and about 60 miles southwest of Orlando. The Project's feedstock will be bituminous coal with the capability of gasifying up to 100 percent petroleum coke ("pet coke"). The Project will also be capable of gasifying renewable biomass as part of the feedstock.

As described in the testimony of witness Chrys A. Remmers, Tampa Electric was awarded Section 48A tax credits for Polk Unit 6. To qualify for the tax credits, Polk Unit 6 must burn at least 75 percent coal for the first five years of service. After meeting the tax credit requirements, the unit's fuel flexibility will allow Tampa Electric to continue to burn the most cost-effective fuel blends.

Polk Unit 6 is expected to generate a net 647 MW of electricity in winter at 32 degrees Fahrenheit and 610 MW in the summer at 92 degrees Fahrenheit. The average annual net heat rate, higher heating value, is expected to be about 9,111 Btu/kWh, and the instantaneous heat rate is expected to be 9,014 Btu/kWh at 75 degrees Fahrenheit. The combustion turbines will have the capability of firing natural gas as a backup fuel.

Q. Please briefly describe the power generation technology that Polk Unit 6 will utilize.

A. While traditional pulverized coal plants grind and burn coal, slurry-fed IGCC units grind coal and mix it with water to create slurry that is then gasified. The technology for Polk Unit 6 will be similar to what Tampa Electric has successfully used at Polk Unit 1, namely IGCC. The fuel feedstock will first be ground into slurry. This fuel feedstock slurry will be transported to two gasifier systems that will convert the fuel slurry into a synthetic gas. This gas will then be treated to remove pollutants such as sulfur, mercury and particulate matter. The cleaned gas will then be used to fire two 232 MW General Electric ("GE") 7FB combustion turbines and generate electrical power. The exhaust heat from the combustion turbines will be utilized in a heat recovery steam generator ("HRSG") to create steam for the steam turbine. This steam will power the steam turbine and produce approximately 325 MW of additional power. The total net output of Polk Unit 6 will be approximately 632 MW. IGCC technology is called "clean coal technology" because it results in lower emissions, compared to traditional pulverized coal units. In fact, Polk Unit 1 has been named the cleanest coal plant in North America.

Q. Please describe the various components and systems that will make up Polk Unit 6.

A. Tampa Electric will use technology for Polk Unit 6 that builds on the company's experiences with Polk Unit 1. Tampa Electric will utilize GE's gasification and power generation technologies. Coal, pet coke and biomass will be received at Polk Station in trains and/or by truck. The solid fuels will be stored on-site and then blended in the desired ratio using weigh feeders as they are reclaimed from storage for use.

Fuel and process water will be ground in rod mills to produce slurry, which will be stored in tanks. A pump will deliver the slurry to the gasifier's feed injector. Main air compressors and extraction air from the two combustion turbines will feed a distillation column, which separates oxygen from nitrogen. Oxygen compressors or pumps will transfer oxygen to the gasifiers, and diluent nitrogen compressors will supply the combustion turbines with nitrogen for nitrogen oxides ("NO_x") suppression and power augmentation. Two GE gasifiers of about the same size as Polk Unit 1 will each operate at 650 psig. A radiant syngas cooler for each gasifier will cool the syngas and make steam, while removing most of the ash particles from the syngas. For each gasifier train, a single water/gas scrubber with multiple steps of water/gas contact will be installed to remove the remaining ash particles.

Several stages of heat recovery followed by a final cooler will be provided in low temperature syngas cooling. An activated carbon bed will remove mercury from the syngas. The system will include two carbonyl sulfide ("COS") hydrolysis systems, one for each gasification train, each consisting of one superheater followed by a COS hydrolysis reactor. A Selexol acid gas removal system will provide high sulfur removal rates. A 700 to 800 ton per day sulfuric acid plant will produce sulfuric acid for sale into the sulfuric acid market. A single saturator column will add water vapor to the syngas for supplemental NO_x suppression. Two 232 MW GE 7FB combustion turbines, each with a HRSG, and a single 325 MW steam turbine will produce approximately 632 MW net output of electrical power. Selective catalytic reduction equipment will be added to each HRSG for additional NO_x control. Design provisions will be made for the addition of carbon dioxide ("CO_2") removal equipment.

Make-up water to the plant will be provided by on-site wells. The existing 750 acre cooling reservoir, along with a supplemental cooling tower will provide cooling for the various heat exchangers in the system.

Polk Unit 6 facilities are described below, and a Process Diagram is provided in Document No. 1 of my Exhibit No. ____ (MRR-1).

Coal Receiving and Storage

Most solid fuel will be delivered via rail, water or a combination of the two methods. Rail and rail unloading equipment will be added to site. Conveyors will transport fuel from the rail car unloader to an active fuel storage area. The active fuel storage area will have two sections: one for coal and the other for pet coke. This area will also have two reclaimers to transport fuel from the active storage area to fuel blending bins. The blending bins will allow the company to combine coal and pet coke in appropriate ratios for use in the gasifiers. Two conveyors will allow transport of the blended fuel to the slurry preparation building. The long term fuel storage area may contain up to 225,000 tons of solid fuel.

Slurry Preparation

The slurry preparation area will contain two rod mills which will grind the fuel and mix it with water to make slurry for injection into the gasifiers. Two slurry tanks will provide a few hours of storage of the slurry. Slurry pumps, one per gasifier, will pump the slurry to the feed injector in each gasifier.

Air Separation Plant

An air separation plant will separate air into its primary components; nitrogen and oxygen. The air plant will include main air compressors, heat exchanger filters, and nitrogen and oxygen compressors or pumps.

Gasification

There will be two gasification trains. Each gasifier will sit on top of a radiant syngas cooler. The radiant syngas cooler will cool the syngas generated in the gasifier, produce steam in the process, and separate most of the ash (slag) from the syngas. Slag will be removed from each radiant syngas cooler through lock hoppers located at the bottom of each cooler.

Slag Removal and Handling

The slag exiting the lock hoppers will travel across screens where it is washed to remove fines which contain carbon that can be reused to enhance efficiency. The slag will continue along conveyors to bins where the material is tested before removal for sale to industrial users. Fines containing high amounts of carbon are returned to slurry preparation and combined with fuel to be re-gasified.

Syngas Scrubbing (Particulate Removal)

The cooled syngas leaving the radiant syngas cooler will go to scrubbers which wash out any remaining particulate matter from the gas. The particulate matter, mixed with water, will be returned to the slurry preparation equipment to be regasified for recovery of the remaining carbon. The scrubbed gas continues on to low temperature gas cooling.

Low Temperature Gas Cooling

The low temperature gas cooling system is a series of heat exchangers that will cool the syngas further, recovering more of the heat from the syngas for use in other portions of the process to improve overall efficiency.

Mercury Removal

A sorbent bed will be included which will remove mercury from the syngas prior to going to the combustion turbines. Approximately 90 percent of the mercury is expected to be removed.

COS Hydrolysis

Equipment will be installed which will convert COS to hydrogen sulfide, which will increase the amount of sulfur removed from the syngas prior to going to the combustion turbines.

Acid Gas Removal

A Selexol acid gas removal system will be included. This equipment will remove sulfur compounds from the syngas prior to it going to the combustion turbines. The resultant acid gas will go to a sulfuric acid plant.

Sulfur Recovery

Sulfur recovery equipment will take the acid gas from the acid gas removal system and convert it to sulfuric acid. The resultant sulfuric acid byproduct will be sold into the sulfuric acid market.

Syngas Saturator

A syngas saturator will add moisture to the syngas prior to its use in the combustion turbine. This saturation step will help to lower NO_x emissions from the combustion turbine/HRSG stacks.

Power Block

There will be two combustion turbines with connected electric generators, two HRSG, and one steam turbine with a connected generator. The combustion turbines will burn the syngas to produce electricity. The hot exhaust gas from the combustion turbines will flow through the HRSG producing steam. The cooled exhaust gas will exit through a stack on each HRSG. The steam produced in the HRSG produces electricity in the steam turbine.

Water Use

Water will be recycled to the maximum extent practical to minimize groundwater use. For instance, the water required for slurry preparation will be derived from internal streams of water recycled from low-temperature cooling. Water wells will draw water from the Upper Floridian Aquifer. Tampa Electric expects any additional water supplies that may be needed will be drawn from wells in this region. This water will be used for process water, potable water and service water. In addition, water will be used for make-up to the cooling reservoir to replace water evaporated from the reservoir and cooling tower.

Cooling Water

Cooling water pumps will take water from the cooling reservoir and route it to the steam turbine condensers. The cooling water from the condensers will return to the discharge portion of the reservoir. This heated water will travel a very long route, cooling off in the process, before arriving back at the intake structure where it will be used again. Other pumps will also take water from the reservoir and will provide make-up water to the new cooling tower basin. This make-up water will replace water evaporated from the cooling tower and water that is discharged to the deep waste water wells. Cooling water pumps will take water from the cooling tower basin and route it to various heat exchangers through out the plant.

Process Water Treatment

Water used throughout the gasification and gas clean up systems will concentrate impurities due to the evaporation or decomposition of water in these processes. To keep these process waters from becoming too concentrated, a stream from these systems will be treated and injected into deep waste water wells located on the site.

OPERATING CHARACTERISTICS

Q. What is the expected heat rate for the Polk Unit 6 IGCC technology?

A. Polk Unit 6 is expected to have an average annual net heat rate of 9,111 Btu/kWh, and an instantaneous net heat rate of 9,014 Btu/kWh at 75 degrees Fahrenheit. Net electric output is expected to be approximately 647 MW in the winter at 32 degrees Fahrenheit and 610 MW in the summer at 92 degrees Fahrenheit.

Q. Please describe the expected availability for Polk Unit 6.

A. The expected Equivalent Availability Factor ("EAF") for Polk Unit 6 is 95 percent, and the availability of the unit is expected to be greater than that of Polk Unit 1. Design changes, such as the elimination of the convective syngas coolers, will contribute heavily to this improvement. In addition, having two gasifiers and two combustion turbines means that a single gasifier or combustion turbine outage will not prevent the entire unit from operating and the unit will still be capable of producing about half of the rated output. Additionally, the ability to utilize natural gas as the backup fuel during gasifier outages will enhance the availability of the unit. If the unit EAF was calculated based upon firing syngas only and without the backup fuel, the EAF would be 86 percent.

Q. What is your conclusion regarding the reasonableness of these heat rate and availability expectations?

A. Based on my experience in engineering and constructing power plants, the estimated heat rate and availability factors are reasonable. Tampa Electric has developed industry-leading knowledge and experience in operating IGCC technology, which further supports the reasonableness of the expected heat rate and availability. In support of my conclusion, witness Mark J. Hornick describes the company's successful experience with operating IGCC technology.

CONSTRUCTION

Q. What is the expected construction schedule for Polk Unit 6?

A. Construction will begin in 2009, and Polk Unit 6 is expected to enter commercial operation in January 2013.

Q. Please describe Tampa Electric's efforts to obtain the required certifications and permits to begin construction of Polk Unit 6.

A. Tampa Electric began developing design information to support permit application preparation in November 2006. The company entered into a contract with GE and Bechtel, an architect/engineer ("A/E") firm, to prepare a preliminary basis for design, block flow diagram, layout drawing and performance and emissions data in support of project development. Both companies continue to support Tampa Electric in the preparation of permit application documents. Tampa Electric has engaged the services of an environmental consultant to prepare air modeling studies and other evaluations, as well as prepare the permit application documents. The permit activities are described in the testimony of witness Paul L. Carpinone.

Q. What is the current schedule for the project?

A. Document No. 2 of my Exhibit No. ____ (MRR-1) outlines the project schedule. Conceptual design began in 2006, and the preliminary engineering package development began in April 2007 and is expected to be completed in April 2008. The Site Certification Application will be filed with the Florida Department of Environmental Protection in August 2007. The detailed design and procurement will begin in January 2008, starting with the engineering for the gasification process and the combined cycle equipment. Detailed design and procurement activities are expected to continue through February 2011. Construction activities are expected to begin in first quarter 2009 with general site work. Major equipment erection includes the combustion turbines, starting in July 2010, the gasification and air separation equipment, starting in October 2010 and the steam turbine and generator equipment, starting in November 2010. Commissioning of the equipment is expected to begin in March 2012. Finally, the unit is expected to begin commercial operation in January 2013.

Q. What is Tampa Electric doing to mitigate the effects of potential construction schedule uncertainty?

A. Tampa Electric is planning to use an approach similar to that used for Polk Unit 1. The construction effort will be managed by a Tampa Electric construction management group that will use multiple prime contractors to perform the construction. Due to the large number of major projects currently planned in the utility industry, the availability of skilled craft labor as well as the ability to secure engineered equipment is a concern in meeting the construction schedule for any project of this magnitude. The use of multiple prime contractors is expected to reduce the potential labor constraints on any one contractor during this time frame. The preliminary engineering work that is currently ongoing will be used to develop a detailed construction schedule that can be optimized to minimize the required work force to construct the plant.

Tampa Electric may also take a phased approach to the construction of the plant. This phased approach will stagger the construction of various portions of the plant. Manpower for each craft will be spread out, minimizing the peak manpower requirements for a given craft at any given time.

Tampa Electric has initiated contract negotiations with critical equipment suppliers to ensure delivery of key equipment such as combustion turbines, steam turbines, and gasification vessels. The balance of plant equipment and material supply packages will be developed and sent out for proposals to qualified suppliers. The supply contracts will include requirements for delivery of design information and materials to support the construction schedule needs. Assuring design information is available in a timely manner, along with assurances on material delivery schedules, will allow the company to manage the constructors efficiently and minimize schedule or cost impacts. Major construction packages will be prepared with complete detailed engineering. These packages will be sent out for proposal to several qualified constructors. This process will result in competitive pricing and minimize change orders once the contracts are in place.

INSTALLED COST

Q. What is Tampa Electric's estimate of the overnight construction costs for Polk Unit 6?

A. The overnight construction cost estimate is $1.614 billion in January 2007 dollars. The primary components are the gasification components with an estimated cost of [redacted] and the balance of plant and power block at an estimated cost of [redacted].

Q. Please explain what is included in the cost estimate.

A. Document No. 3 of my Exhibit No. ____ (MRR-1) provides the details of the cost estimate. The $1.614 billion cost estimate represents overnight construction costs for all direct work at Polk Unit 6. This includes all engineering, procurement, construction, startup and commissioning costs. The project estimate does not include owner's costs, related transmission additions or modifications, or contingency.

Q. What is Tampa Electric's estimate of the total in-service costs for Polk Unit 6?

A. The total in-service cost estimate for Polk Unit 6 is $2.013 billion, which includes the aforementioned overnight construction costs as well as owner's costs, contingency, escalation, and transmission costs. Owner's costs include project development costs such as technology development and environmental permitting; project management and operational support and training; legal and other professional services costs; and insurance. Tampa Electric estimated the owner's costs for Polk Unit 6 based on its experience developing and constructing generating units in Florida, including Tampa Electric's existing IGCC unit, Polk Unit 1.

The estimate also includes contingency and escalation. Contingency is based on Tampa Electric's experience with power plant construction projects. The $25 million costs of required transmission facilities to integrate and interconnect Polk Unit 6 with Tampa Electric's system are separately identified and are described in the testimony of witness Thomas J. Szelistowski.

Q. Will subsequent engineering work result in changes to the installed cost estimate for Polk Unit 6?

A. Perhaps. The cost estimate represents the best estimate Tampa Electric has to date for the planned project configuration. The estimate does not include contingency for changes in the scope of the project or significant modifications of the planned configuration. Such changes will be evaluated and justified based on the impact to the cost and performance of the project. Approved changes could result in increases or decreases to the cost estimate.

Q. What contracting strategy and competitive pricing options will Tampa Electric pursue to manage the cost and schedule of Polk Unit 6?

A. Tampa Electric is planning to competitively bid the use of multiple prime contractors to execute the construction of Polk Unit 6. A construction management team will oversee and coordinate the multiple prime contractors. Tampa Electric believes this approach is more cost-effective than an Engineer, Procure and

Construct ("EPC") contract, considering the size of the project as well as the current market conditions. Very few EPC contractors have the ability to handle a project of this scope and dollar value. In addition, the technology is specific to GE, the process licensor. The process is highly integrated between the gasifier's syngas cooler, low temperature gas cooling, combustion turbines, HRSG and steam turbine. GE primarily uses Bechtel as its A/E for IGCC projects, and both companies have vast experience in the design and engineering of IGCC projects, including their 10-year partnership with Tampa Electric in refining the technology at Polk Unit 1. The expertise of GE and Bechtel will enable Tampa Electric to develop Requests for Proposals ("RFP") for equipment and labor for the project and will result in a wide variety of participants. This process will provide opportunities to control costs and reduce schedule risks.

Q. What scope of services will Bechtel be providing?

A. Under Tampa Electric's direction, Bechtel will provide design coordination between the various suppliers of technology, equipment and materials required to build the plant. They will also provide the required technical specifications, design basis documents, process flow diagrams, drawings and procurement services.

Q. What gasification technology is Tampa Electric planning to use?

A. Tampa Electric is using the same gasification technology as Polk Unit 1, and some major equipment will be provided by the technology provider, GE, such as gasifiers, radiant syngas coolers and combustion turbines. Other major equipment will be competitively bid to qualified suppliers. Some equipment, such as the air separation plant, may be bid to multiple suppliers on a lump sum turnkey basis. Others will be grouped into compatible equipment types such as horizontal pumps or high pressure valves and bid to multiple suppliers of the particular type of equipment.

Q. How has this contracting strategy influenced the estimated installed cost for Polk Unit 6?

A. Tampa Electric believes that using multiple prime contractors overseen by the company's construction management team is the most cost-effective approach. An

EPC contract approach would require a contractor to add a significant risk premium to the price. EPC contractors would not have firm pricing or quantities for materials or labor prior to supplying a lump sum proposal. Both the material and labor costs may have significant variability during the progress of the project. These factors would result in the EPC contractor adding a significant risk premium to their proposal price. Tampa Electric's experience with managing large power plant projects demonstrates the company's ability to manage the projects within the planned cost, schedule and performance without incurring these additional risk premiums. Tampa Electric has not added any risk premium to the cost estimate.

Q. What is the current status of Polk Unit 6?

A. Tampa Electric is currently engaged in preliminary engineering to develop permit data. Additional engineering efforts are also ongoing to define the major aspects of the plant design. This information will be used to manage the detailed engineering effort and refine cost estimates and the project schedule.

Q. Does Tampa Electric's cost estimate include indexed components?

A. No. The current cost estimate is based on preliminary estimates by various equipment suppliers, factored quantities from other projects and overnight construction costs. However, it is possible that suppliers may utilize established cost indices in their bid offerings due to the current volatility in prices of construction materials and raw products. Tampa Electric's bid evaluation process will consider indexed bids on a case by case basis.

Q. How has Tampa Electric considered the effects of carbon capture and sequestration ("CCS") on the Project, given the potential for future environmental regulations?

A. As shown in Document No. 4 of my exhibit, the Project plot plan allows for the space to include carbon capture equipment to be installed once the regulations are developed, and Tampa Electric will continue to consider the effects of CCS on the design of the Project. Tampa Electric has reviewed numerous studies regarding CCS. As described in greater detail in the testimony of witness Mark J. Hornick, these studies have generally concluded that both capital costs and the cost of electricity are lower for IGCC technology with CO_2 capture than for any other coal-based generating technology. Tampa Electric, using cost estimates published by the DOE, performed sensitivity analysis of the effects of possible future CCS regulations on the total installed cost of Polk Unit 6 as compared to other fossil fuel fired generating technologies. This is further described in the testimony of witness William A. Smotherman.

Q. Why, when considering CCS, does IGCC technology have an advantage?

A. IGCC's advantage arises from the fact that the CO_2 is captured prior to combustion. This allows the CO_2 to be removed while the synthesis gas is still under high pressure and absent the large quantity of nitrogen associated with combustion air. This means that there is a small volume of gas to be processed relative to post-combustion flue gas volumes. This results in the equipment necessary for CO_2 removal being much smaller and less costly. Another advantage is that some of the physical sorbents presently used in IGCC technology for sulfur removal are also effective for removal of CO_2. This advantage results in equipment modifications to an

IGCC system for carbon capture which are less extensive than for other coal based technologies. Finally, IGCC technology is highly efficient, producing less CO_2 per megawatt hour of electricity produced than existing solid fuel units.

Natural gas combined cycle ("NGCC") units produce significantly less CO_2 than coal fired units. However, the fuel price savings for the IGCC unit as compared to the NGCC unit results in the selection of the IGCC unit since there are no current requirements to capture and sequester carbon. Furthermore, studies by the U.S. Department of Energy and others comparing these two generating technologies with carbon capture demonstrate that IGCC remains the lowest cost option for carbon control equipment. This is primarily due to the significantly lower cost per ton of carbon capture commercially available to IGCC as compared to the high cost of commercially available carbon capture from the flue gas of a NGCC unit. Therefore, an IGCC unit is more cost-effective than an NGCC unit in the case of potential future carbon control requirements. Witnesses Paul L. Carpinone, Mark J. Hornick and William A. Smotherman discuss potential future CO_2 regulation, technology capabilities for carbon controls and the company's carbon control sensitivity analysis, respectively.

The costs of carbon storage or sequestration are unaffected by the process used to capture CO_2; therefore, sequestration costs are essentially the same for all coal based technologies.

Q. Please summarize Tampa Electric's efforts to ensure the reasonableness of the Polk Unit 6 total estimated installed cost.

A. Tampa Electric has constructed many large capital projects using a similar approach to the Polk Unit 6 approach. Tampa Electric employs several strategies to monitor and manage all phases of these projects including: (1) establishing project contracts that will provide the best value; (2) monitoring the work of the engineering company to ensure that work is done in an efficient manner; and (3) assigning full time project controls personnel to manage the costs and the schedule throughout the project execution. Dedicated Tampa Electric personnel lead the project management throughout construction and are integrally involved in each phase of its development. The company's track record using this approach is excellent.

Q. Is the total installed cost estimate reasonable?

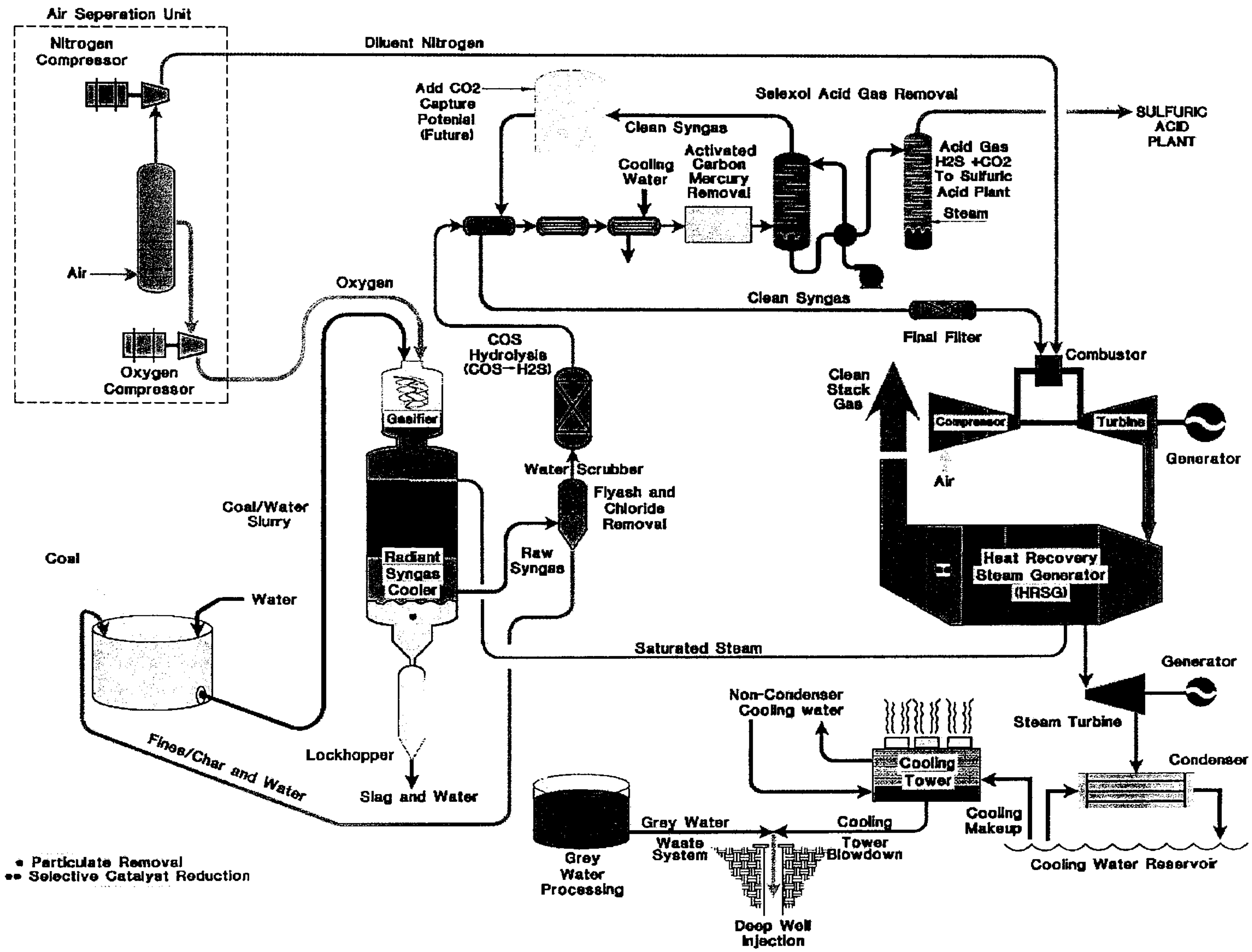
A. Yes. The total estimated cost represents the best efforts of the companies with the most experience in IGCC in the United States: Tampa Electric; GE, the technology supplier; and the A/E, Bechtel.

Q. Please summarize your testimony.

A. Polk Unit 6 will be designed and installed for $2.013 billion in a cost-efficient manner in accordance with the project schedule to provide cost-effective, clean power for Tampa Electric's customers. Tampa Electric has operated Polk Unit 1 successfully for over 10 years and will apply that knowledge and experience to the design, construction and operation of Polk Unit 6. The design of Polk Unit 6 will include proven technologies as well as known improvements. Polk Unit 1 experience has led to the addition of COS hydrolysis, syngas saturation, combustion turbine air extraction and carbon rich fine slag re-injection to the Polk Unit 6 design. The Polk Unit 6 design does not include the convective syngas coolers used at Polk Unit 1, which will improve reliability. Tampa Electric's expertise in managing large power plant projects, even with new technologies, will allow the company to keep costs and schedule under control while also assuring the unit will perform within expected parameters. Polk Unit 6 will be capable of burning a variety of fuels that will provide low cost energy for many years. Finally, the company's plan considers CO_2 capture and sequestration in the future should regulations change.

Q. Does this conclude your testimony?

A. Yes, it does.

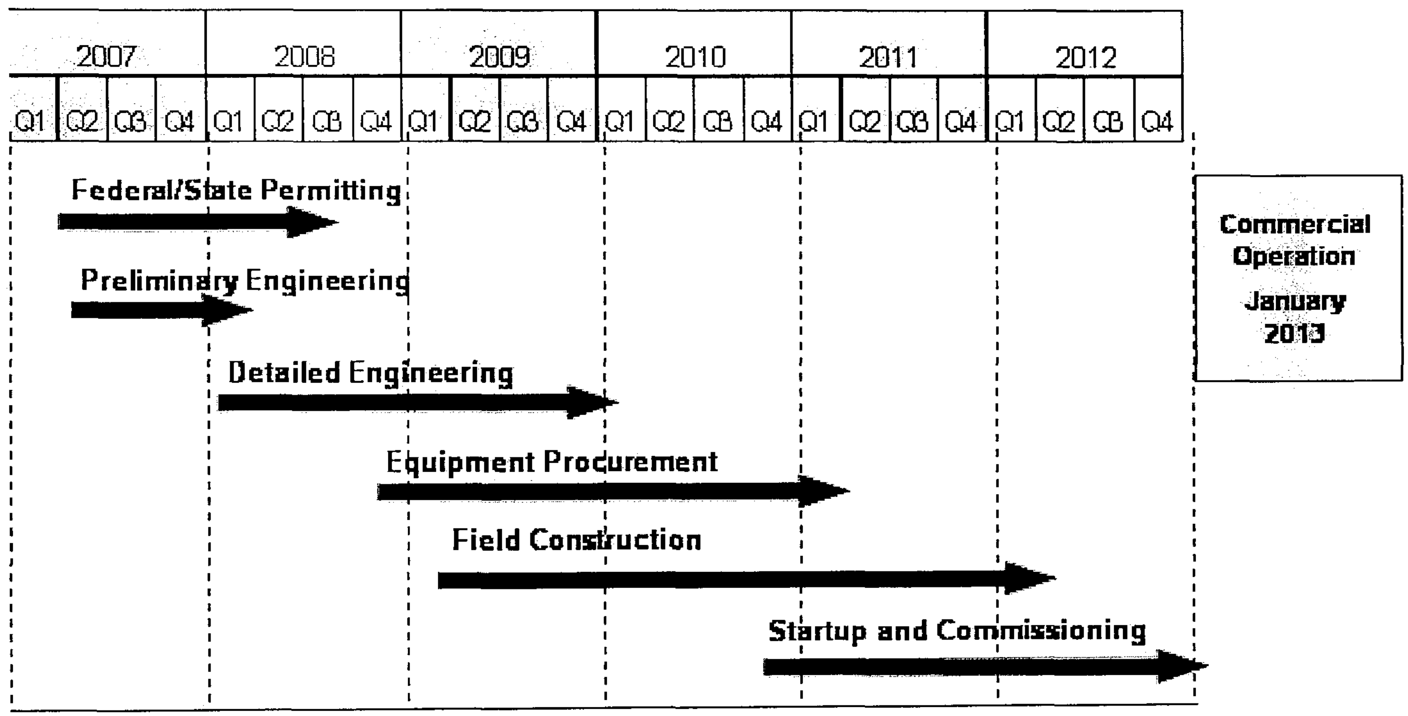


POLK 6 PROCESS

DOCKET NO. 07____-EI
PROCESS DIAGRAM
EXHIBIT NO. ____
DOCUMENT NO. 1 (MRR-1)
PAGE 1 OF 1

DOCKET NO. 07____-EI
PROJECT SCHEDULE
EXHIBIT NO. ____ (MRR-1)
DOCUMENT NO. 2
PAGE 1 OF 1

Polk Unit 6 Project Execution Plan

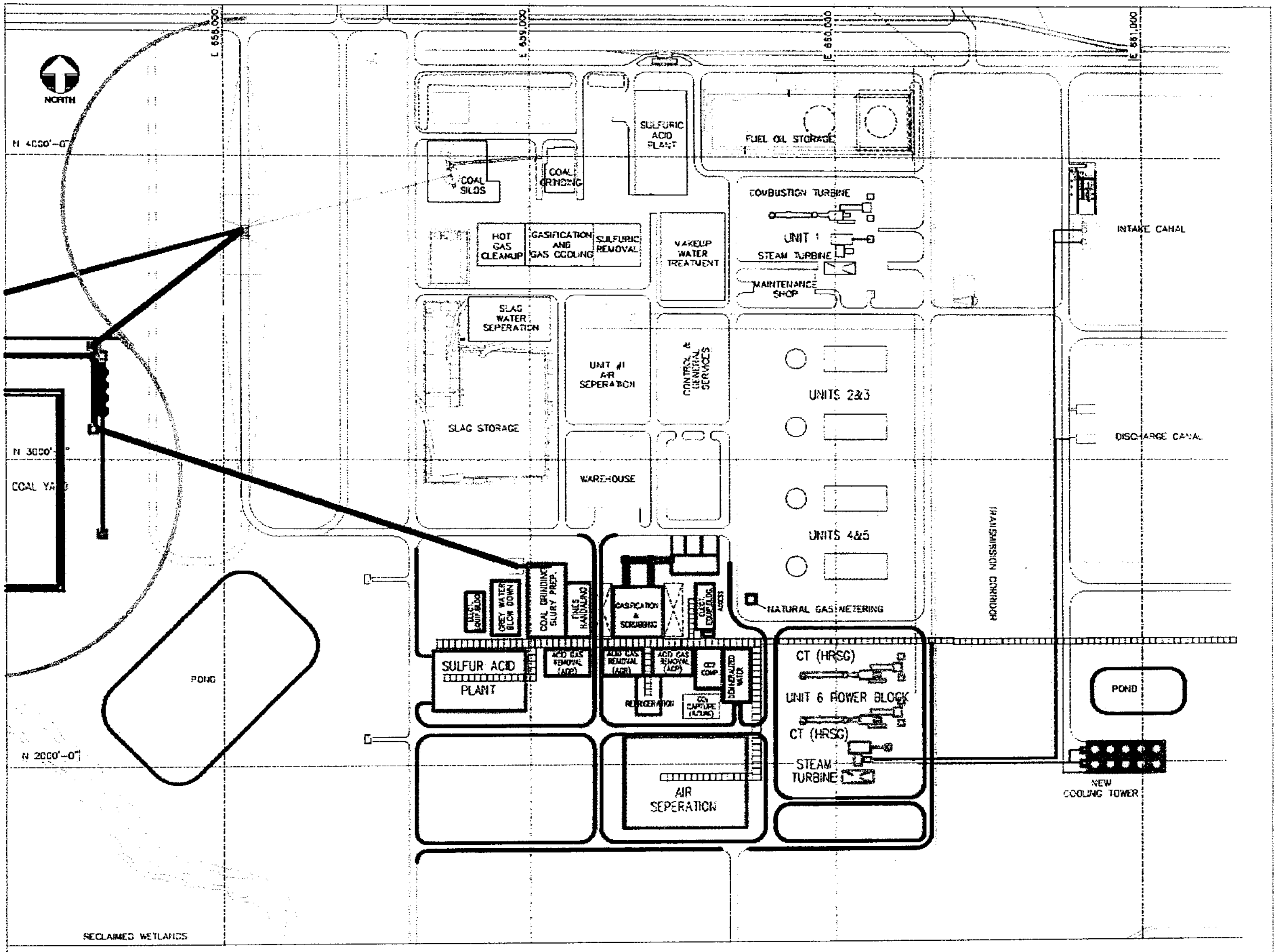


Polk Unit 6 Cost Estimate

	($000)
Gasification	
Coal Grinding & Slurry Feed	[redacted]
Gasification (LTGC, Black Water Flash and Slag Handling)	
Fine Slag Handling	
Acid Gas Removal (Ammonia Strippers)	
CO_2 Recycle	
Sulfuric Acid Plant	
Syngas Saturation	
Grey Water Blowdown Pretreatment	
Air Separation Unit	
Zero Process Water Discharge	
Gasification Subtotal	
Power Block & Balance of Plant	
Power Block	[redacted]
Balance of Plant	
Coal Handling Addition	
Power Block and BOP Subtotal	
Overnight Direct Engineering, Procurement, Construction & Startup Costs[1]	**$ 1,614,150**
Transmission[1]	25,000
Owner's Costs[1]	100,000
Contingency and Escalation	273,658
Total In-Service Costs	**$ 2,012,808**

1 Costs are in 2007 dollars.

DOCKET NO. 07____-EI
PLOT PLAN
EXHIBIT NO. ____ (MRR-1)
DOCUMENT NO. 4
PAGE 1 OF 1



PROPOSED PLOT PLAN OF POLK UNIT 6