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IN REPLY REFER TO

Tallahassee

May 7, 1996

HAND DELIVERY

Ms. Blanca S. Bayo, Director
Division of Records and Reporting
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, FL 32399-0850

Re: Prudency Review to Determine Regulatory Treatment of Tampa Electric Company's Polk Unit; FPSC Docket No. 960409-EI

Dear Ms. Bayo:

Enclosed for filing in the above docket are the original and fifteen (15) copies of each of the following:

1. Prepared Direct Testimony of Girard F. Anderson. 05109-96
2. Prepared Direct Testimony of Thomas F. Bechtel. 05110-96
3. Prepared Direct Testimony and Exhibit of Charles R. Black. 05111-96
4. Prepared Direct Testimony and Exhibit of Thomas L. Hernandez. 05112-96
5. Prepared Direct Testimony and Exhibit of John R. Rowe, Jr. 05113-96
6. Prepared Direct Testimony and Exhibit of Hugh W. Smith. 05114-96
7. Prepared Direct Testimony and Exhibit of Elizabeth A. Townes. 05115-96

Please acknowledge receipt and filing of the above by stamping the duplicate copy of this letter and returning same to this writer.

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Thank you for your assistance in connection with this matter.

Sincerely,

Lee L. Willis

LLW/pp
Enclosures

cc: All Parties of Record (w/encls.)

13p.

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TAMPA ELECTRIC COMPANY

BEFORE THE

FLORIDA PUBLIC SERVICE COMMISSION

DOCKET NO. 960409-EI

TESTIMONY

OF

THOMAS F. BECHTEL

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TAMPA ELECTRIC COMPANY

BEFORE THE

FLORIDA PUBLIC SERVICE COMMISSION

DOCKET NO. 960409-EI

TESTIMONY

OF

THOMAS F. BECHTEL

TAMPA ELECTRIC COMPANY
DOCKET NO. 960409-EI
SUBMITTED FOR FILING 5/7/96

BEFORE THE PUBLIC SERVICE COMMISSION

PREPARED DIRECT TESTIMONY

OF

THOMAS F. BECHTEL

Q. Please state your name, address, occupation.

A. My name is Thomas F. Bechtel. My business address is U.S. Department of Energy, Morgantown Technology Center, 3610 Collins Ferry Road, Morgantown, WV 26505 and I am employed by the United States Department of Energy in the position of Director of the Morgantown Energy Technology Center.

Q. What is your educational background and business experience?

A. As Director, I am responsible for the implementation of the U.S. Department of Energy fossil energy research and development programs in lead assignment areas designated for the Morgantown Energy Technology Center. These areas include research on coal conversion and utilization systems involving coal gasification, fluidized-bed combustion, gas turbine and diesel engine combustion, fuel cell applications, and associated cleanup systems necessary for system operations. I am also responsible for

unconventional natural gas resources, oil shale and tar sands resource recovery. I am responsible for oversight of the Clean Coal Technology projects that fall within my technology assignment areas. I manage an organization of about 280 Federal employees with an additional 250 contractor support personnel. A satellite office in Laramie, Wyoming, is managed from the Morgantown Center.

From January 1986 to April 1990, I was Associate Director of the Morgantown Energy Technology Center's office of Technical Management. In that position, I was responsible for management of the Department of Energy's R&D in coal gasification, fluidized-bed combustion, unconventional gas recovery, components, instrumentation and control, gas stream cleanup, fuel cells, heat engines, oil shale, tar sands, and underground coal gasification and for managing the DOE's involvement in assigned clean coal projects.

From 1981 to 1986 I was Vice President, Engineering; Vice President, Advanced Engineering and Technology; and Vice President, Product Services for General Electric Environmental Services, Inc., which was formed by the acquisition of the Buell and Chemico Division of Envirotech Corporation. Prior to that, I was a design engineering manager for GE's gas turbine business.

I graduated from Lehigh University in 1958 with a BS in Mechanical Engineering. In 1960, I graduated from the University of Cincinnati, with a Masters Degree in Applied Mechanics.

Q. Have you previously testified before this commission?

A. Yes, I testified before this commission in Tampa Electric Company's Need for Power Hearing Docket No. 910883-EI in late 1991.

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to describe the Department of Energy's (DOE) Clean Coal Technology Program and its primary objective. I will also discuss how the Polk Power Station Project is supporting these objectives. In addition, I will review Tampa Electric Company's (TEC) management of the Polk Power Station Project relative to the other related on-going and completed Clean Coal Technology projects.

Q. What were the Department of Energy's objectives in the Clean Coal Technology program and specifically in the Polk Power Station Project?

A. The Clean Coal Technology (CCT) Program is a unique partnership between the federal government and industry that has as its primary goal, the successful introduction of new clean coal utilization technologies into the energy marketplace. This program also intends to broaden the range of technical solutions available to eliminate environmental concerns associated with coal use. Moreover, the program has evolved and has been expanded to address the need for new, high efficiency power generating technologies that will allow coal to continue to be a major fuel option well into the 21st century.

For the Polk Power Station Project specifically, DOE's primary objective was to conduct a cost-shared project that would successfully demonstrate the Integrated Gasification Combined Cycle (IGCC) Technology on a commercial sized unit at a greenfield site.

From a technical standpoint, the objective of this IGCC project is to show that the combination of an oxygen-blown Texaco gasifier and the General Electric 7F Combustion Turbine (CT) can achieve significant reductions in SO_2 and NO_x emissions when compared to existing and future coal burning power plants. This project also includes a parallel slip stream system for the demonstration of Hot

Gas Clean-up (HGCU) system which is very important to DOE in providing technically proven, highly efficient sulfur removal systems that can be economically installed on these future coal burning power plants.

Successful completion of this project will confirm that IGCC can provide current, and future power plant projects with a technology that can utilize the United States' most abundant and economical fuel resource in an environmentally acceptable and technically proven manner.

Q. Will the Polk Power Station Project achieve the Department of Energy's objectives?

A. Yes, the Polk Power Station Project will achieve all the Department of Energy's objectives. Based on DOE's technical and economic reviews and analyses of the Polk Power Station Project, DOE is firmly convinced that the Polk IGCC unit will be one of the cleanest, coal fired plants in the world. It will also achieve operating efficiencies about 30% greater than current state-of-the-art pulverized coal fired units.

The Polk unit is currently on schedule for a fall 1996 completion. This will support one of DOE's main goals of

having this technology available for utilities as they do their planning for meeting the requirements of the second phase of the Clean Air Act Amendments of 1990 which takes effect in the year 2000.

DOE has monitored the cost of the Polk IGCC Unit continuously from the original approval date of the Cooperative Agreement. Our review indicates that the Polk IGCC Unit is tracking very close to DOE approved costs and that at the completion of the project, Polk is expected to be at, or below, the currently approved DOE funding limits.

With all the above taken into account, DOE feels that the Polk IGCC will be the success DOE is expecting and it will result in a viable technology which will be commercially available for future coal fired generating plants.

Q. Please describe the Department of Energy's view of Tampa Electric's management of the environmental process.

A. In the Department of Energy's (DOE) view, Tampa Electric has done a commendable job in managing the environmental process related to the construction of the Polk Power Station Project. In today's climate, receiving permit approval for any new power facility is a major hurdle.

When it is considered that the Polk IGCC plant is a coal fueled plant, reaching environmental accord with all the different parties involved is a truly resounding success story.

Many of the Clean Coal Projects faced strong opposition from special interest groups. Some of the projects were terminated due to efforts of these groups. Because of Tampa Electric's thoroughness, presentation of credible and supporting data, and dedication to community and environmental concerns, the permitting process, including the hearings themselves, were completed in an unprecedented rapid fashion.

Tampa Electric's unique utilization of the Citizens Siting Task Force provided a forum for all interested and involved parties, including business, community, environmental, and academic leaders, to voice their concerns and have their concerns not only addressed, but also included in the final site selected. The Task Force selected a very environmentally disturbed existing site and converted the selected site into a Power Station Project with which all parties were satisfied. This is truly a win-win situation of the highest magnitude.

DOE originally intended to coordinate all of the various federal permits from the Morgantown Technology Center. As the permitting requirements developed, it became apparent that the permit cycle could add as much as one year to the project's schedule. In order to mitigate the very real and expensive project impacts of a one year permit delay, DOE worked with Tampa Electric to successfully transfer the lead agency status to the Environmental Protection Agency (EPA) and achieved permit finalization with a less than three (3) month delay to the in-service date. Tampa Electric management and involvement, which included continuous monitoring of the day to day permit process, was instrumental in mitigating the project delay.

Q. Please describe the Department of Energy's view of the management of the engineering, procurement and construction of the project.

A. Tampa Electric has taken a very active role in the management of the Polk Power Station Project and as a direct result of their initiative and involvement, the project is nearing an impressive successful completion. Tampa Electric provided management oversight and even more importantly, direct involvement in the procurement of all project equipment and construction contracts. All equipment

was competitively bid and appropriately evaluated. Tampa Electric sent a team of procurement personnel to Houston to work with, and within, the A/E's procurement organization, to ensure that appropriate and effective terms for cost, delivery, and warranties were included in each and every order.

DOE conducted annual engineering audits as the project progressed. These audits were to confirm that Tampa Electric was appropriately managing the project and that the resulting design conformed to the requirements of the Cooperative Agreement and the goals and objectives of the Clean Coal Program. The results of these DOE audits confirmed that TEC's management of the project did indeed satisfy and support the DOE requirements.

The accomplishments noted above are even more remarkable considering that this is the first commercial site unit of this type to be installed and the technology being used in many cases is developmental in nature.

Q. Please describe the Department of Energy's overall review of Tampa Electric's management of the project.

A. Tampa Electric has faced significant permit challenges

related to the Polk Power Station Project including permitting a new technology in an environmentally sensitive area in an era of ever increasing regulatory involvement and restrictions. They have met, addressed and accommodated all these challenges admirably.

TEC has successfully managed a project which has had to mesh the differing cultures of refinery, utility, and chemical plant industries with technologies that are developmental, recently established, and long used. The new technologies included both equipment and processes which further compounded the difficulty for the Polk IGCC Unit.

Tampa Electric has confronted more than the usual number of cost challenges on the Polk Project. Over the past few years, the DOE Clean Coal Program has been under pressure to reduce funding of the projects. Never-the-less, DOE has invested over $97,000,000, through March 1996 in this project, because it continues to be very important to our nation in developing technology that can use the United States' most abundant fuel, coal, in a environmentally acceptable and technically proven manner. DOE has approved total funding of this project of over $122,000,000 for capital costs and $20,100,000 for operating and maintenance

costs of the unit during its first two years of generation.

In addition to the previously noted schedule delays created by late receipt of federal permits, the developmental nature of this project forced TEC to continuously monitor and evaluate other potentially serious schedule slippages associated with completing the unexpected changes of a developing technology. As a result of its experience and expertise, TEC was able to successfully manage the project to achieve the completion date that DOE expected.

Despite the formidable obstacles that TEC faced, TEC has managed all aspects of the Polk IGCC project in a professional and prudent manner.

The TEC project management has exceeded the Department of Energy's expectations for successful and timely completion of the project, and within budget limits based on DOE's experience on other Clean Coal Projects utilizing a developmental technology. The DOE has gained a great deal of confidence in TEC's ability to manage such a complex project.

The Polk Power Station Project is one of the shining stars of the DOE's Clean Coal Technology Program. Tampa Electric

Company is to be commended for their successful implementation of this very complex project.

Q. Do you have any recommendations for this Commission regarding their decisions on the issues in this Docket?

A. Yes. I would recommend that this Commission recognize DOE's conclusions as I have articulated regarding Tampa Electric's performance in managing this project. With $100 million invested, the DOE has taken great care in overseeing this project and is confident in its conclusions regarding Tampa Electric's management. This Commission should treat Tampa Electric fairly for taking the risk and successfully managing a project that the DOE feels is extremely important to our nation's energy future.

Q. Please summarize your direct testimony.

A. The DOE has actively participated in this project from its inception. DOE believes the project has been managed effectively and that the costs incurred by Tampa Electric on the Polk Power Station Project are reasonable and prudent.

Q. Does this conclude your direct testimony?

A. Yes, it does.