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January 29, 1999

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By Hand Delivery

Blanca S. Bayó, Director Records and Reporting Florida Public Service Commission 4075 Esplanade Way, Room 110 Tallahassee, Florida 32399-0850

> Re: FPL/Gas R&D Program Progress Report in Docket 950492-EG

Dear Ms. Bayó:

Enclosed for filing on behalf of Florida Power & Light Company (FPL) are the original and fifteen (15) copies of FPL's Gas Research and Development Program Progress Report in Docket No. 950492-EG.

If you or your Staff have any questions regarding this filing, please contact me.

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GAS RESEARCH AND DEVELOPMENT PROGRAM

PROGRESS REPORT

FLORIDA POWER & LIGHT COMPANY

January 29, 1999

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I. Introduction

Background:

In Order No. PSC-94-1313-FOF-EG, issued October 25, 1994, the Florida Public Service Commission (Commission) set numeric demand-side management goals for FPL. The Commission also determined that the IOUs' lacked sufficiently accurate information to set specific goals relating to natural gas substitution for electricity. Consequently, the Commission ordered FPL to conduct natural gas research and demonstration projects to develop Florida-specific data on performance and cost-effectiveness of gas technologies. In Order No. PSC-95-1146-FOF-EG, issued September 15, 1995, the FPSC approved FPL's Natural Gas End-Use Technology Research and Development Plan, which included five natural gas-fired end-use technologies; residential gas water heating, residential gas heat pump, gas engine driven chiller, gas engine driven DX air conditioning and gas desiccant cooling. FPL subsequently added the Gas Business Custom Incentive (BCI) R&D project to its Gas R&D efforts.

After the June 9, 1995 issuing of Proposed Agency Action Order No. PSC-95-0691-FOF-EI, approving FPL's DSM plan, protests of that order were filed, including a petition for a formal proceeding by Peoples Gas System, Inc (Peoples). Thereafter, in order to avoid litigation, FPL and Peoples began settlement negotiations. FPL and Peoples filed a stipulation on September 19, 1995. As part of this stipulation, FPL and Peoples agreed to work together to locate existing sites utilizing the technologies under study in FPL's Natural Gas End-Use Technology Research and Development Plan. Peoples also agreed not to protest the PAA Order approving FPL's Gas R&D Plan.

In Order No. PSC-95-1343-S-EG issued on November 27, 1995 the Commission approved a stipulation between FPL and Peoples resolving Peoples' protests to FPL's DSM plan. In that stipulation FPL agreed, among other things: 1) to revise its Gas Engine-Driven Chiller Project to remove the requirement to monitor heat recovery, 2) the adoption of the Gas Business Custom Incentive R&D Project which allows Peoples to present specific projects to FPL, and 3) to allow Peoples to identify potential sites for FPL's Gas Engine-Chiller and Gas Engine-Driven DX A/C Research Projects.

FPL subsequently filed petitions seeking revision of its Gas Engine-Driven Chiller Project and approval of the Gas BCI R&D Project. The Commission approved these petitions in Order No. PSC-96-0410-FOF-EG.

On January 2, 1997, with the support of Peoples Gas, FPL petitioned the Commission to terminate FPL's Gas Engine-Driven DX Air Conditioning Research Project and remove the Project from FPL's DSM Plan. The Commission granted termination of this Project on May 28, 1997 in Order No. PSC-97-0607-FOF-EG.

On December 17, 1998, FPL submitted the Final Report for the Gas Desiccant Cooling project. This technology did not prove cost-effective using the FPSC approved cost-effectiveness methodologies.

II. Progress to Date

A. Residential Gas Water Heating

FPL was able to locate 20 sites for the monitoring part of the project. The sites are in Broward, Brevard and Volusia counties. All of the sites had existing gas water heaters, and the monitoring equipment was installed in 1996, and data has been collected. The last of the sites had the monitoring equipment installed and inspected on November 13, 1996. All field monitoring was completed, and monitoring equipment was removed in 1998.

Next Steps: The contractor will complete analysis of the data in preparation of the final report,

B. Residential Gas Heat Pump

The schedule in FPL's R&D Plan was to perform a laboratory efficiency test of the Gas Heat Pump and to begin field testing four sites in 1996. Through the efforts of our consultant, we were able to determine that a laboratory test of the unit was not necessary, and a draft Gas Heat Pump Operating Cost Comparison based on the ANSI Z21.40.4 rating system has been completed. Because lab testing was not required, FPL was able to immediately recruit field sites without waiting on the results of Phase I.

FPL, with the cooperation of Peoples, was able to locate two sites in the Daytona area with existing gas heat pumps installed and recruit two other sites in the Melbourne area where FPL had to install the gas heat pumps. Contracts were secured with these customers between May and September of 1996. Monitoring equipment installation and inspection was completed in November of 1996. The start of monitoring was impacted by difficulty in recruiting the two new sites and an over three month lead time in getting the gas heat pumps delivered and installed at the customers' homes.

Field monitoring was completed in 1998, and all monitoring equipment was removed. Both of the customers where FPL installed new gas heat pumps requested that the equipment be removed and replaced with electric heat pumps. Their complaints and reasons for removal included operational costs, reliability, time required for repairs and annual maintenance costs. These gas heat pumps were replaced in the 4th quarter of 1998.

Next Steps: The contractor will complete analysis of the data in preparation of the final report.

C. Gas Engine Driven Chillers.

The schedule in FPL's R&D Plan was to complete a site search by mid-year 1996 and begin field testing of the two units. Through efforts of FPL with cooperation of Peoples, FPL was able to identify three existing gas chillers sites which could potentially be used for the study. One of the sites was in Peoples' service territory in Sarasota, and the other two were in Miami. FPL was able to secure contracts (12/19/96 & 2/17/97) with two sites for this program. Progress was impacted on this project because of difficulty in recruiting customers with existing gas chillers. However, this delay was worthwhile since it resulted in lower project costs and less lead time than if we installed new chillers. During the second half of 1997, both sites were being monitored. Several months of data were lost when the Miami site needed repairs to the engine during the summer.

Field monitoring was completed in 1998 and all monitoring equipment should be removed by February. One of the chiller sites installed an electrical chiller, citing reliability problems with the gas chiller. The electric chiller was installed early in 1998, but the customer did not run the unit, except for back-up, until after FPL completed it's monitoring of the gas chiller.

Next Steps: The contractor will complete analysis of the data in preparation of the final report.

D. Gas Engine DX A/C

The original scope in FPL's R&D Plan was to do a site search and field testing of the Gas DX A/C units. FPL and Peoples completed a feasibility study of this technology. As part of this study, FPL and Peoples worked with the gas DX equipment manufacturers to determine the proper performance specification for the equipment. Based on these specs, the equipment was then modeled for a variety of operating situations. The results of this study showed that gas DX A/C equipment does not have a market in Florida as a straight cooling unit without heat recovery. FPL and Peoples agreed that the best approach for this technology would be to discontinue the evaluation of the technology as outlined in FPL's Natural Gas End-Use Technology Research and Development Plan and to add Gas DX with Heat Recovery to the allowable technologies in the Gas Business Customer Incentive Research Project. This would allow FPL and Peoples to get useful data on the type of customer applications that we were more likely to see with this technology.

In January of 1997 FPL petitioned the Commission for termination of this Project, which was granted May 28, 1997. As a result of this, gas DX A/C equipment was eligible under the Gas BCI R&D Project.

E. Gas Desiccant Cooling

The schedule on FPL's R&D Plan was for the completion of Phase I of this effort which was FPL's existing C/I Dehumidification Project. FPL filed for an extension of this Project and the final report was filed on December 17, 1998.

F. Gas BCI R&D Project

Although not part of FPL's originally submitted Gas R&D Plan, FPL is including a status report on its companion Gas BCI R&D Project.

FPL and Peoples met to review the program. FPL provided Peoples with the program standards for Gas BCI as well as reviewed details about how FPL would analyze the cost-effectiveness of the specific projects that would be submitted by Peoples.

In 1997, as part of the termination of the gas-engine DX Air Conditioning Project, this equipment was made eligible for incentives and monitoring within the Gas BCI R&D Project. This project was completed in April 1998 and Peoples Gas did not submit any projects.