Florida Power
CORPORATION

March 25, 1999

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

Ms. Bayo:

Attached is Florida Power Corporation' s response to Y2K questions in preparation for the Florida Public Service Commission workshop "Review of Regulated Utilities' Year 2000 Preparations and Readiness (Electric and Gas)" scheduled for March 29, 1999.

If you require additional information in preparation for this meeting, please contact me at 727-820-5801.

Sincerely,
Timothy J. DeBoy

tim.j.deboy@fpc.com

cc: Arthur Sciarrotta (FPC)
James Stanfield (FPC)

March 29,1999 Year 2000 Readiness Workshop
Questions for all Electric Utilities and Natural Gas Utilities
Florida Power Corporation

1. **Has your utility bifurcated its Year 2000 remediation efforts between "mission critical" and "important" systems?**

   Yes, Florida Power Corporation has categorized systems as "mission critical", "required" and "non-mission critical".

2. **If your utility has bifurcated its remediation efforts, what functions (e.g., safety, generation, customer billing, accounting, payroll) make up the "mission critical" category? What functions make up the "important" category? Please describe how you distinguish between "mission critical" and "important" systems.**

   Mission Critical - refers to the functions / processes which are critical to meet the company's minimal operational requirements to support our business continuity. These include systems that support the safe, reliable generation and distribution of electricity. Significant regulatory impact, adverse public, customer or employee impact, significant shutdown could occur within 7 days, or major financial impact > $100,000 a day.

   Required - refers to the functions / systems that support the day-to-day operation of our business, and will become mission critical if not resolved within 72 hours. These include those processes that support customer service and financial impact < $100,00 a day, could potentially cause business process slowdown or affect customer relations.

3. **Has your utility prioritized its "mission critical" systems? If so, please provide the priority listing.**

   Florida Power Corporation has not prioritized "mission critical" systems. All "mission critical" systems will be addressed within the scope of our Y2K project. Prioritization of work is based on considerations including the availability of resources (both internal and external), business need, outage schedules, etc.

   Florida Power Corporation intends to have all mission critical systems Y2K ready by the NERC target of June 30, 1999. In addition, all "mission critical" systems will be addressed within Florida Power Corporation's Y2K contingency plan.

4. What method are you using to test your mainframe computers? Please describe this method.

At Florida Power Corporation, mainframe testing is performed for both applications and operating system components. Prior to the testing of the applications, custom code was assessed by an automated date scanning software to identify potential date issues. This was followed by a manual review of the potential date impacted code. Date related application program logic was then corrected, at which time the applications are tested.

The first level of testing is baseline testing to parallel test the corrected code with production code to insure the functionality of the application. This is performed within the production test environment. Second is the date testing to insure the date logic is correct in the application, using a tool to intercept the system date and aging the program data to correspond to the tested system date. The dates tested are described in the answer to question 12 below.

The final level of testing on the mainframe is what we refer to as our interoperability testing. Here we simultaneously test the environment, the application, interfaces, and the operating software required to support the mainframe. This environment was created as a Y2K LPAR (logical partition) environment, which was determined to be the most comprehensive manner in which to test all components that comprise the mainframe environment. The LPAR is a mirror of the production environment in regards to applications, environmental settings, tools, and software versions. This environment maintains a separate date from the normal production and testing environment and therefore the LPAR date can be advanced to any of the designated Y2K test dates. All mission critical applications or applications at risk for date related issues are being tested in the LPAR environment. In addition to applications, operating system components and tools (such as the job scheduler and code debugger) are tested in this environment to ensure that there are no date issues.

The Energy Management System is being tested using both an application simulator and a completely independent hardware test platform. All software modules are being tested using these systems.

5. What systems do you have running on mainframe computers?

Florida Power Corporation's current mainframe computer has was installed in May of 1998. It has 4 gigabytes of memory, 1.15 terabytes of DASD, and processes 265 million instructions/second. It supports 64 applications that comprise approximately 15 million lines of code.

- Customer Information, Billing, and Service (7 million lines of code)

- Materials, Purchasing, Inventory, & Accounts Payable
- Electronic Data Interchange
- Outage Management, Streetlight, Meter, & Fleet Information
- Work Management, Work Order Closing & Substation Management
- Financial: General Ledger, Budgets, Tax, Capital Projects
- Time Entry, Benefits, Labor, Overtime Tracking
- 126 operating system components including scheduling, security, data management, and system backup

Florida Power Corporation has an Energy Management System composed of 29 processors installed in a cluster configuration. The main servers have 1 gigabyte of memory each, 52 gigabytes of DASD, and processes approximately 410 million instructions/second. It supports 67 applications that comprise approximately 1 million lines of code.

- SCADA for both Transmission & Distribution (T & D), Automatic Generation Control, and power system analysis (EMS)

6. What "mission critical" systems are not run on mainframe computers?

Server Computing Environment – Client/Server Systems – we have 200 servers. They contain 32 megabytes to 1 gigabytes of memory per machine, and together contain 1.5 to 2 terabytes of DASD.

- 4 are mail servers, 30 are application, 31 are database, the remainder file/print
- 45 corporate applications
- Human Resources
- Geographical Information System
- Transmission Work Management
- Plant Maintenance
- Load Management

Our Crystal River application environment consists of two servers, 1 CPU each, containing 1 gigabyte of memory per machine, and 80 gigabytes of DASD.

- Over 30 client/server applications – Oracle database
- Document Control System
- Personnel Access Data System
- Radiological Data Management
- Equipment Clearance
- Training System

7. **What systems have you found that contain date-sensitive embedded chips?**

   Metering systems, plant control computers, telecommunication switches, servers, routers, workstations, and digital fault recorders.

   In T & D protective relays, embedded microprocessors are mainly used for event recording purposes, which require a date/time function. They do not, however affect the functionality of the relay. The same is true of RTUs.

   Within Nuclear Operations, the following plant systems are examples of where embedded chips have been found: within data recorders; data loggers; heating, ventilation and air conditioning; instrument test equipment; radiation monitoring; plant security; and plant process monitoring computer.

8. **Are embedded chips being tested both as a stand-alone device and as part of an integrated system? If not, why?**

   Yes, we are testing individual components such as workstations and a telephone switch in a lab, as well as testing the same equipment as part of an entire system as part of our interoperability testing.

   Transmission & Distribution is taking a sample of each device that contains embedded chips. A minimum of one device of a model is being tested in-house. All tests are being made on a component level.

9. **Are all "mission critical" related mainframe computers, PC computers, and embedded chips being tested notwithstanding any vendor's or manufacturer's claim that the device is year 2000 compliant? If not, why?**

   Yes, our goal is to test all mission critical systems to the extent possible, regardless of the vendor/manufacturer's certification claims. All models of PC are tested for Year 2000 readiness. This testing included hardware, BIOS, Operating System and mission critical system software. Many manufacturers of software may not have tested their software in an environment that matches that in place at Florida Power.

10. **Are you conducting sampling tests instead of testing all of your systems? If you are conducting sampling tests, please describe the methodology you are using and explain how and why you selected this methodology?**

    Sampling is being conducted in situations where it would not be economically feasible for Florida Power Corporation to test every system and it has been determined that the risk associated with not testing every component is minimal. For example, Florida Power Corporation owns several thousand Dell PC's of the same make and model. FPC is selecting a sample of PC's (which includes several

PCs for every combination of Operating System, System BIOS, Make/Model and other system software components) and testing each of these. Sampling of this type is performed when there are large numbers of identical system components.

11. What precautions are you taking to ensure that "mission critical" communications links are not interrupted? Will these precautions be detailed in your contingency plan?

Florida Power Corporation is performing tests of "mission critical" communications links at the component and system level (interoperability). This includes both voice and data telecommunications capabilities. FPC has completed interoperability testing for our two call centers and our data network. Our final interoperability test of the voice systems is scheduled to occur in late April 1999. In addition, FPC has met with our major telephone service providers to verify the continuity of this critical dependency. In addition, our contingency plans will require the availability of technicians at FPC locations with critical telecommunications equipment during key dates/times.

12. What dates, in addition to the millennium rollover are being tested? Why?

- September 9, 1999 - the intent of this test is to identify any software that may have used 9/9/99 as a high value to identify an end of file, stop run, or stop execution condition.

- Monday, January 3, 2000 - this is to ensure that the software will run on the first business day of the new century and handle days of the week correctly.

- February 28, 2000 - this is the starting date to ensure that programs handle the rollover to Tuesday, February 29, 2000 (leap year day), and finally to Wednesday, March 1, 2000.

- December 31, 2000 and allowing the system to roll automatically to January 1, 2001 - This will ensure that any Year 2000 logic that was added to the software will work beyond the Year 2000.

- January 1, 2001- the intent of this test date is to catch software that may have used 01/01/01 as a low value or as a beginning of a file indicator.

- Testing with a date within a year of the maximum expected software life. This allows testing up to the expected life of the software.

- Any business specific date that is deemed critical for the business and is not tested by the above conditions. For example, the last payroll date of 1999 and the first payroll date of 2000 would be included when testing Payroll. Julian

date and leap year processing testing should also be included if it may have a unique impact on the application.

13. Has your utility conducted or scheduled any contingency drills? If so, please indicate the purpose of each drill.

Florida Power Corporation is scheduled to participate in scheduled NERC drills. The first is scheduled for April 9th, 1999. This drill will demonstrate the ability to operate the bulk electric system with limited voice and data communications and reduced EMS/SCADA functionality. The second NERC drill is scheduled for September 8/9, 1999, although the scope of the drill has not yet been defined.

In addition to the NERC drills, FPC participated in a large-scale multi-function test of the EMS system and the real time connectivity to neighboring utilities real time with the clock set to key Y2K dates, which occurred in January 1999.

14. What "mission critical" systems and locations will be manned during the millennium rollover? Will these assignments be detailed in your contingency plan?

It is fully expected that the energy control center, critical switch-yard facilities, telecommunications field locations, the nuclear power plant, all fossil plants, the customer call centers, and the computer centers will be manned during the millennium rollover. A corporate memorandum from the Florida Power president went out to FPC employees notifying them of the key dates and the need for their services during the key date periods. FPC's Y2K contingency plan, which will detail all staffing assignments, is currently under development and should be completed by June 30, 1999

15. What is your company's internal deadline for testing and remediating the following:

(1)	Mainframe computers?	June 30, 1999
(2)	PC computers?	June 30, 1999
(3)	Embedded chips on a system integration basis?	June 30, 1999

16. What tests are you conducting to ensure that "non-mission critical" operations, which may not be Year 2000 compliant, will not inadvertently affect "mission critical" operations?

All non-mission critical system interfaces with mission critical systems will be tested to ensure that they do not create Year 2000 issues for the mission critical systems. In addition, we have performed assessment, remediation, and application testing for all Information Technology supported applications, both mission critical and non-mission critical.