Florida
Power
CORPORATION

JAMES A. MCGEE
SENIOR COUNSEL

March 31, 1999

990000

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

Re: Ten-Year Site Plan

Dear Ms. Bayó:

Pursuant to Rule 25-22.071, F.A.C., enclosed for filing are 25 copies of Florida Power Corporation's Ten-Year Site Plan as of December 31, 1998.

Please acknowledge your receipt of the above filing on the enclosed copy of this letter and return to the undersigned. Thank you for your assistance in this matter.

Very truly yours,

James A. McGee

JAM/kma
Enclosure

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# Florida Power
CORPORATION

# *Ten-Year Site Plan*

*APRIL, 1999*

Florida
Power
CORPORATION

# *Ten-Year Site Plan*

*1999-2008*

*Submitted To :*

*State of Florida*
*Public Service Commission*

*APRIL, 1999*

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## CHAPTER 4 ENVIRONMENTAL and LAND USE INFORMATION

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## LIST OF
## REQUIRED SCHEDULES

## FLORIDA POWER CORPORATION
## CODE IDENTIFICATION SHEET

**Generating Unit Type**

ST - Steam Turbine - Non-Nuclear
NP - Steam Power - Nuclear
GT - Combustion Turbine (Gas Turbine)
CC - Combined Cycle
SPP - Small Power Producer
COG - Cogeneration Facility

**Fuel Type**

UR - Nuclear (Uranium)
NG - Natural Gas
F06 - No. 6 Fuel Oil
F02 - No. 2 Fuel Oil
BIT - Bituminous Coal
MSW - Municipal Solid Waste
WH - Waste Heat
BIO - Biomass

**Fuel Transportation**

WA - Water
TK - Truck
RR - Railroad
PL - Pipeline
UN - Unknown

**Future Generating Unit Status**

CA - Capability increase
FC - Conversion to alternate fuel
P - Planned but not authorized
RE - Scheduled for retirement
RP - Proposed for repowering
TS - Construction complete, but not yet in commercial operation
U - Under construction, less than 50% complete
V - Under construction, more than 50% complete

# *CHAPTER 1*

## *Description of EXISTING FACILITIES*

# CHAPTER 1 Description of EXISTING FACILITIES

## EXISTING FACILITIES OVERVIEW

### OWNERSHIP

Florida Power Corporation (FPC) is an investor-owned electric utility. The company's common stock is held by Florida Progress Corporation which has over 44,000 registered shareholders. Approximately 19,000 of FPC shareholders live in Florida. In addition, millions of other people have an interest in the company due to investments made by insurance companies, mutual savings banks, and pension funds.

### AREA OF SERVICE

The company's area of service (see Area of Service Map) encompasses approximately 20,000 square miles in over 30 Florida counties and is serviced by local business offices. The company supplies electricity at retail to approximately 350 communities and at wholesale to about 8 municipalities. Wholesale supplemental electric service also is supplied to Seminole Electric Cooperative, Inc. (SECI), Florida Municipal Power Agency (FMPA), and Reedy Creek Improvement District (Walt Disney World).

## TRANSMISSION/DISTRIBUTION

The company is part of a nationwide interconnected power network that enables power to be exchanged between utilities. FPC has approximately 4,600 miles of transmission lines and over 80 transmission substations. The distribution system includes over 24,000 circuit miles, with approximately 6,000 of those miles underground. FPC has over 270 distribution substations.

## ENERGY MANAGEMENT

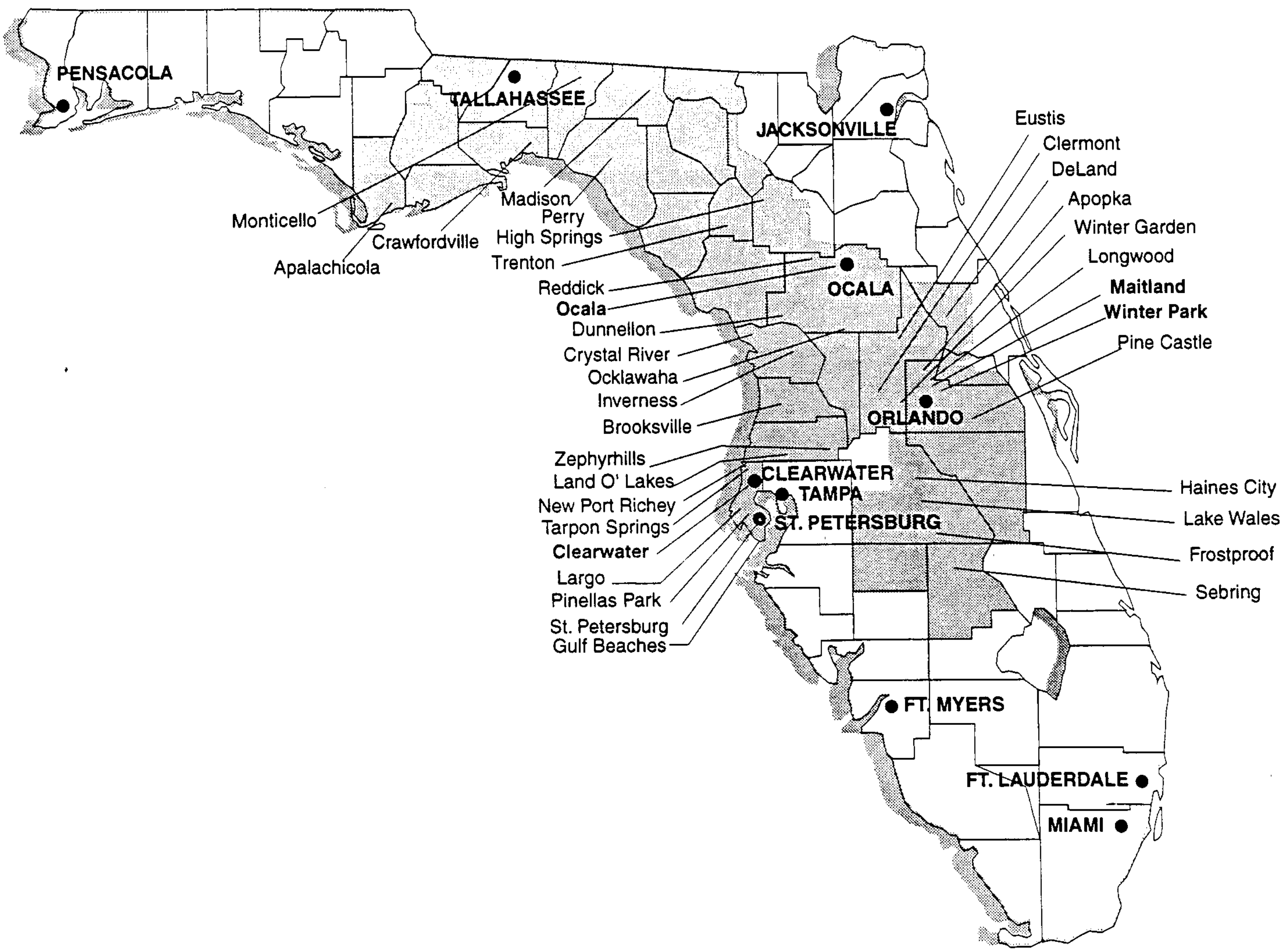
Florida Power customers participating in the company's Energy Management program are managing future growth and costs. Over 500,000 customers participated in the Energy Management program during the year. This excellent participation level provides over 875,000 KW of peak shaving capacity for use during high load periods.

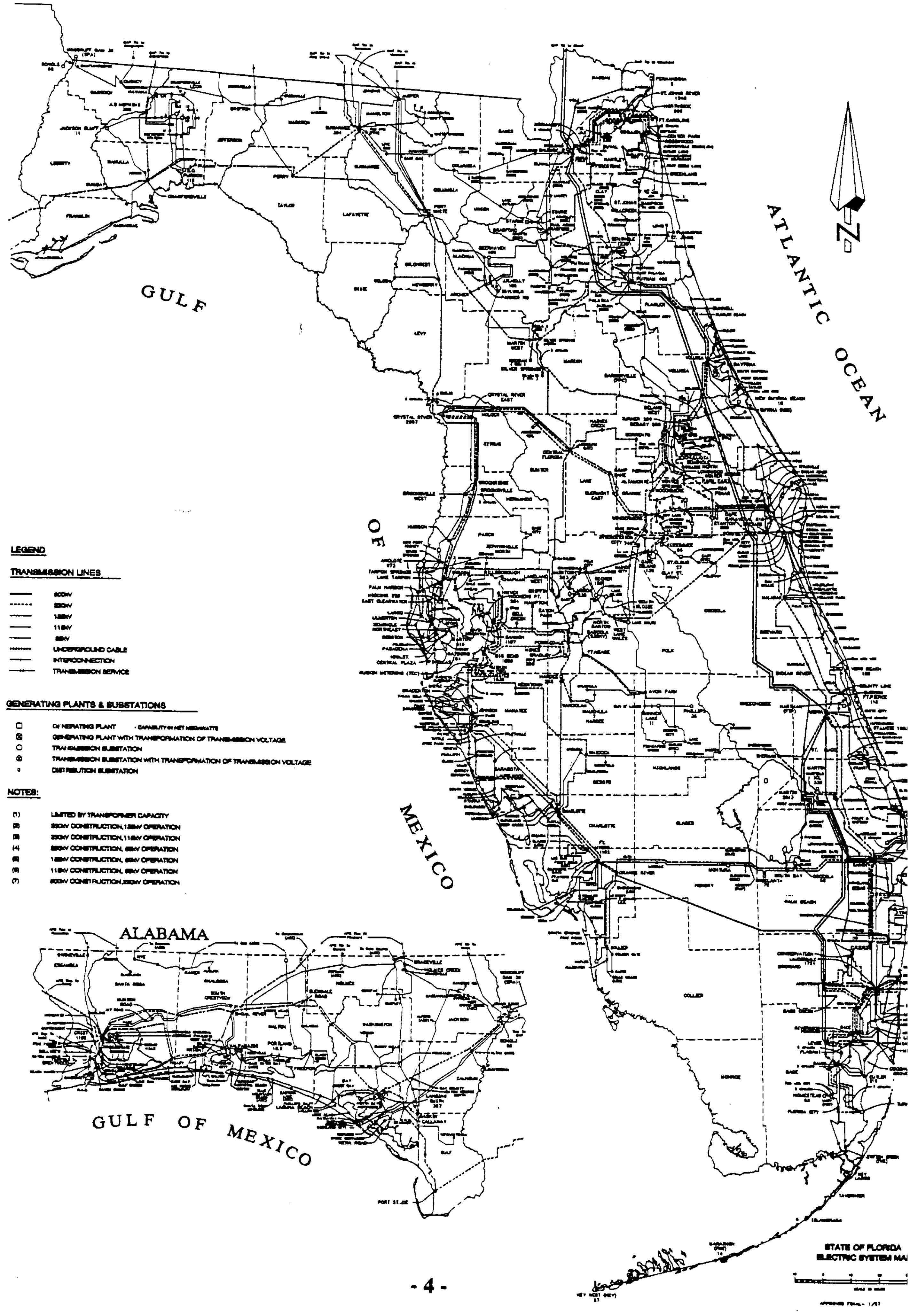
## TOTAL CAPACITY RESOURCE

Florida Power has a total capacity resource of 9,027 MW. This capacity resource includes utility and non-utility purchased power, peaking facilities, nuclear, and fossil steam and combined cycle plants. Additional information on FPC's existing generating facilities are shown on Schedule 1.

Florida Power CORPORATION

# Florida Power Corporation • Area of Service





GULF
OF
MEXICO
ATLANTIC OCEAN
N
ALABAMA
GULF OF MEXICO
LEGEND
TRANSMISSION LINES
500KV
230KV
138KV
115KV
69KV
UNDERGROUND CABLE
INTERCONNECTION
TRANSMISSION SERVICE
GENERATING PLANTS & SUBSTATIONS
GENERATING PLANT - CAPABILITY IN NET MEGAWATTS
GENERATING PLANT WITH TRANSFORMATION OF TRANSMISSION VOLTAGE
TRANSMISSION SUBSTATION
TRANSMISSION SUBSTATION WITH TRANSFORMATION OF TRANSMISSION VOLTAGE
DISTRIBUTION SUBSTATION
NOTES:
(1) LIMITED BY TRANSFORMER CAPACITY
(2) 230KV CONSTRUCTION, 138KV OPERATION
(3) 230KV CONSTRUCTION, 115KV OPERATION
(4) 230KV CONSTRUCTION, 69KV OPERATION
(5) 138KV CONSTRUCTION, 69KV OPERATION
(6) 115KV CONSTRUCTION, 69KV OPERATION
(7) 500KV CONSTRUCTION, 230KV OPERATION
STATE OF FLORIDA
ELECTRIC SYSTEM MA

**FLORIDA POWER CORPORATION**

SCHEDULE 1
EXISTING GENERATING FACILITIES
AS OF DECEMBER 31, 1998

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | FUEL | | FUEL TRANSPORT. | | ALT. FUEL DAYS USE | | | | NET CAPABILITY | |
| PLANT NAME | UNIT NO. | LOCATION | UNIT TYPE | PRIMARY | ALT. | PRIMARY | ALT. | | COMMERCIAL IN-SERVICE MONTH/YEAR | EXPECTED RETIREMENT MONTH/YEAR | GEN. MAX. NAMEPLATE KW | SUMMER MW | WINTER MW |
| | | | | | | | | | | | | 1,006 | 1,034 |
| ANCLOTE | 1 | PASCO CO. | ST | F06 | | PL | | | 10/1974 | | 556,200 | 503 | 517 |
| | 2 | SECT.33,34 T26S,R15E | ST | F06 | NG | PL | PL | | 10/1978 | | 556,200 | 503 | 517 |
| | | | | | | | | | | | | 58 | 64 |
| AVON PARK | P1 | HIGHLANDS CO. | GT | NG | F02 | PL | TK | | 12/1968 | 12/2004 | 33,790 | 29 | 32 |
| | P2 | | GT | F02 | | TK | | | 12/1968 | 12/2004 | 33,790 | 29 | 32 |
| | | | | | | | | | | | | 627 | 666 |
| BARTOW | 1 | PINELLAS CO. | ST | F06 | | WA | | | 09/1958 | | 127,500 | 115 | 117 |
| | 2 | SECT.20,21,22 | ST | F06 | | WA | | | 08/1961 | | 127,500 | 117 | 119 |
| | 3 | T30S,R16E | ST | NG | F06 | PL | WA | | 07/1963 | | 239,360 | 208 | 213 |
| | P1, P3 | | GT | F02 | | WA | | | 06/1972 | | 111,400 | 92 | 106 |
| | P2, P4 | | GT | NG | F02 | PL | WA | | 06/1972 | | 111,400 | 95 | 111 |
| | | | | | | | | | | | | 188 | 232 |
| BAYBORO | P1-P4 | PINELLAS CO. SECT. 30 T31S,R17E | GT | F02 | | WA,TK | | | 04/1973 | | 226,800 | 188 | 232 |
| | | | | | | | | | | | | 2,961 | 3,031 |
| CRYSTAL RIVER | 1 | CITRUS CO. | ST | BIT | | WA,RR | | | 10/1966 | | 440,550 | 369 | 373 |
| | 2 | SECT.33 | ST | BIT | | WA,RR | | | 11/1969 | | 523,800 | 464 | 469 |
| | 3 * | T17S,R16E | NP | UR | | TK | | | 03/1977 | | 890,460 | 734 | 755 |
| | 4 | | ST | BIT | | WA,RR | | | 12/1982 | | 739,260 | 697 | 717 |
| | 5 | | ST | BIT | | WA,RR | | | 10/1984 | | 739,260 | 697 | 717 |
| | | | | | | | | | | | | 656 | 786 |
| DEBARY | P1-P6 | VOLUSIA CO. | GT | F02 | | TK,RR | | | 04/1976 | | 401,220 | 324 | 390 |
| | P7, P9 | SECT.16,19-21, | GT | NG | F02 | PL | TK,RR | | 11/1992 | | 230,000 | 166 | 198 |
| | P8, P10 | 28-30,T18S,R30E | GT | F02 | | TK,RR | | | 11/1992 | | 230,000 | 166 | 198 |
| | | | | | | | | | | | | 128 | 148 |
| HIGGINS | P1-P2 | PINELLAS CO. | GT | NG | F02 | PL | TK | | 04/1969 | 12/2003 | 67,580 | 58 | 64 |
| | P3-P4 | T25S,R16E | GT | NG | F02 | PL | TK | | 12/1970 | 12/2003 | 85,850 | 70 | 84 |
| | | | | | | | | | | | | 757 | 912 |
| INTERCESSION CITY | P1-P6 | OSCEOLA CO. | GT | F02 | | PL,TK | | | 05/1974 | | 340,200 | 282 | 348 |
| | P7-P10 | SECT. 31 | GT | NG | F02 | PL | PL,TK | | 11/1993 | | 460,000 | 332 | 396 |
| | P11 | T25S,R28E | GT | F02 | | PL,TK | | | 01/1997 | | 165,000 | 143 | 168 |
| | | | | | | | | | | | | 15 | 18 |
| RIO PINAR | P1 | ORANGE CO. | GT | F02 | | TK | | | 11/1970 | 12/2003 | 19,290 | 15 | 18 |
| | | | | | | | | | | | | 307 | 348 |
| SUWANNEE RIVER | 1 | SUWANNEE CO. | ST | NG | F06 | PL | TK | | 11/1953 | 12/2001 | 34,500 | 33 | 34 |
| | 2 | SECT. 26, | ST | NG | F06 | PL | TK | | 11/1954 | 12/2001 | 37,500 | 32 | 33 |
| | 3 | T1S,R11E | ST | NG | F06 | PL | TK | | 10/1956 | 12/2001 | 75,000 | 80 | 80 |
| | P1, P3 | | GT | NG | F02 | PL | TK | | 11/1980 | | 122,400 | 108 | 134 |
| | P2 | | GT | F02 | | TK | | | 11/1980 | | 61,200 | 54 | 67 |
| | | | | | | | | | | | | 206 | 246 |
| TIGER BAY | 1 | POLK CO. | CC | NG | | PL | | | 08/1997 | | 233,000 | 206 | 246 |
| | | | | | | | | | | | | 160 | 200 |
| TURNER | P1-P2 | VOLUSIA CO. | GT | F02 | | TK | | | 10/1970 | 12/2004 | 38,580 | 30 | 36 |
| | P3-P4 | SECT. 1, T19S,R30E | GT | F02 | | TK | | | 08/1974 | | 142,400 | 130 | 164 |
| | | | | | | | | | | | | 36 | 42 |
| UNIV. OF FLA. | P1 | ALACHUA CO. | GT | NG | | PL | | | 01/1994 | | 43,000 | 36 | 42 |
| | | | | | | | | | | | | 7,105 | 7,727 |

* REPRESENTS 90.4 % FPC OWNERSHIP OF UNIT

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# *CHAPTER 2*

## *Forecast of ELECTRIC POWER DEMAND and ENERGY CONSUMPTION*

# CHAPTER 2 Forecast of ELECTRIC POWER DEMAND and ENERGY CONSUMPTION

## OVERVIEW

The following Schedules 2, 3 and 4 represent FPC's history and forecast of customers, energy sales (GWh), and peak demand (MW). High and low scenarios are also presented for sensitivity purposes.

The base case was developed using both econometric and end-use forecasting methodologies to predict a forecast with a 50/50 probability, or most likely scenario. The high and low scenarios, which have a 90/10 probability of occurrence or an 80 percent probability of an outcome falling between the high and low cases, employed a Monte Carlo simulation procedure that studied 1,000 possible outcomes of retail demand and energy.

FPC's customer growth is expected to average 1.7 percent between 1999 and 2008, less than the ten-year historical average of 2.2 percent. Slower population growth -- based on the latest projection from the University of Florida's Bureau of Economic and Business Research -- results in a lower base case customer projection when compared to the rapid growth of the 1980's.

Net energy for load, which had grown at an average of 3.4 percent between 1989 and 1998, is expected to increase by 1.7 percent per year from 1999-2008 in the base case, 2.1 percent in the high case and 1.3 percent in the low case.

Summer net firm demand is expected to grow an average of 0.9 percent per year during the next ten years. This compares to the 2.8 percent (weather adjusted) average annual growth rate experienced throughout the last ten years. Winter net firm demand is projected to grow at 1.3 percent per year after having increased by 2.1 percent (weather adjusted) per year from 1989 to 1998. High and low summer growth rates for net firm demand are 1.3 percent and 0.5 percent per year, respectively, while high and low winter net firm demand growth rates are 1.7 percent and 0.9 percent, respectively.

The reduction in the projected energy and demand growth rates from historical rates is mainly due to an assumed loss of a short-term wholesale contract with Seminole Electric Cooperative, Incorporated. Projected retail sector growth is below the historical average due to slower population growth, less rapid economic expansion and improved appliance efficiencies in electric end-uses.

## ENERGY CONSUMPTION SCHEDULES

FPC's History and Forecast of Energy Consumption and Number of Customers by Customer Class are shown on Schedules 2.1, 2.2 and 2.3.

## FORECAST OF ELECTRIC POWER DEMAND SCHEDULES

FPC's History and Forecast of Base, High and Low Summer Peak Demand are shown on Schedules 3.1.1, 3.1.2 and 3.1.3.

FPC's History and Forecast of Base, High, and Low Winter Peak Demand are shown on Schedules 3.2.1, 3.2.2 and 3.2.3.

FPC's History and Forecast of Base, High and Low Annual Net Energy for Load are shown on Schedules 3.3.1, 3.3.2 and 3.3.3.

FPC's Previous Year Actual and Two-Year Forecast of Peak Demand and Net Energy for Load by Month are shown on Schedule 4.

**FLORIDA POWER CORPORATION**

SCHEDULE 2.1
HISTORY AND FORECAST OF ENERGY CONSUMPTION AND
NUMBER OF CUSTOMERS BY CUSTOMER CLASS

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|---|---|---|---|---|---|---|---|---|
| | RURAL AND RESIDENTIAL | | | | | COMMERCIAL | | |
| YEAR | FPC POPULATION | MEMBERS PER HOUSEHOLD | GWh | AVERAGE NO. OF CUSTOMERS | AVERAGE KWh CONSUMPTION PER CUSTOMER | GWh | AVERAGE NO. OF CUSTOMERS | AVERAGE KWh CONSUMPTION PER CUSTOMER |
| 1989 | 2,404,525 | 2.46 | 11,787 | 977,448 | 12,059 | 6,990 | 111,079 | 62,928 |
| 1990 | 2,492,186 | 2.47 | 12,416 | 1,007,806 | 12,320 | 7,329 | 113,595 | 64,519 |
| 1991 | 2,537,012 | 2.46 | 12,624 | 1,029,901 | 12,257 | 7,489 | 114,657 | 65,317 |
| 1992 | 2,588,540 | 2.47 | 12,826 | 1,050,077 | 12,214 | 7,544 | 116,727 | 64,629 |
| 1993 | 2,653,485 | 2.46 | 13,373 | 1,076,657 | 12,421 | 7,885 | 119,811 | 65,812 |
| 1994 | 2,720,931 | 2.47 | 13,863 | 1,100,537 | 12,597 | 8,252 | 122,987 | 67,097 |
| 1995 | 2,786,332 | 2.48 | 14,938 | 1,124,679 | 13,282 | 8,612 | 126,189 | 68,248 |
| 1996 | 2,830,566 | 2.48 | 15,481 | 1,141,671 | 13,560 | 8,848 | 129,441 | 68,356 |
| 1997 | 2,881,169 | 2.48 | 15,080 | 1,160,611 | 12,993 | 9,257 | 132,504 | 69,864 |
| 1998 | 2,917,242 | 2.47 | 16,526 | 1,182,786 | 13,972 | 9,999 | 136,345 | 73,339 |
| 1999 | 2,977,469 | 2.47 | 16,456 | 1,207,592 | 13,627 | 10,003 | 139,076 | 71,928 |
| 2000 | 3,028,435 | 2.46 | 16,977 | 1,229,424 | 13,809 | 10,369 | 141,906 | 73,069 |
| 2001 | 3,079,584 | 2.46 | 17,483 | 1,250,941 | 13,976 | 10,721 | 144,694 | 74,096 |
| 2002 | 3,129,842 | 2.46 | 17,982 | 1,272,229 | 14,134 | 11,050 | 147,453 | 74,939 |
| 2003 | 3,179,051 | 2.46 | 18,456 | 1,293,290 | 14,270 | 11,378 | 150,184 | 75,763 |
| 2004 | 3,227,026 | 2.46 | 18,889 | 1,314,121 | 14,374 | 11,709 | 152,883 | 76,585 |
| 2005 | 3,273,606 | 2.45 | 19,316 | 1,334,725 | 14,472 | 12,046 | 155,554 | 77,442 |
| 2006 | 3,320,254 | 2.45 | 19,738 | 1,355,333 | 14,563 | 12,358 | 158,226 | 78,102 |
| 2007 | 3,366,359 | 2.45 | 20,148 | 1,375,989 | 14,642 | 12,668 | 160,903 | 78,732 |
| 2008 | 3,412,384 | 2.44 | 20,552 | 1,396,715 | 14,714 | 12,977 | 163,590 | 79,325 |

**FLORIDA POWER CORPORATION**

SCHEDULE 2.2
HISTORY AND FORECAST OF ENERGY CONSUMPTION AND
NUMBER OF CUSTOMERS BY CUSTOMER CLASS

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|---|---|---|---|---|---|---|
| | INDUSTRIAL | | | | | | |
| YEAR | GWh | AVERAGE NO. OF CUSTOMERS | AVERAGE KWh CONSUMPTION PER CUSTOMER | RAILROADS AND RAILWAYS GWh | STREET & HIGHWAY LIGHTING GWh | OTHER SALES TO PUBLIC AUTHORITIES GWh | TOTAL SALES TO ULTIMATE CONSUMERS GWh |
| 1989 | 3,766 | 3,021 | 1,246,607 | 0 | 19 | 1,561 | 24,123 |
| 1990 | 3,456 | 3,115 | 1,109,470 | 0 | 21 | 1,658 | 24,880 |
| 1991 | 3,303 | 3,124 | 1,057,298 | 0 | 23 | 1,740 | 25,179 |
| 1992 | 3,254 | 3,137 | 1,037,297 | 0 | 24 | 1,765 | 25,413 |
| 1993 | 3,381 | 3,107 | 1,088,188 | 0 | 25 | 1,865 | 26,529 |
| 1994 | 3,580 | 3,186 | 1,123,666 | 0 | 26 | 1,954 | 27,675 |
| 1995 | 3,864 | 3,143 | 1,229,532 | 0 | 27 | 2,058 | 29,499 |
| 1996 | 4,224 | 2,927 | 1,443,011 | 0 | 26 | 2,205 | 30,785 |
| 1997 | 4,188 | 2,830 | 1,479,783 | 0 | 27 | 2,299 | 30,850 |
| 1998 | 4,375 | 2,707 | 1,616,324 | 0 | 27 | 2,459 | 33,387 |
| 1999 | 4,088 | 2,733 | 1,495,887 | 0 | 29 | 2,465 | 33,042 |
| 2000 | 4,060 | 2,738 | 1,482,812 | 0 | 30 | 2,550 | 33,986 |
| 2001 | 4,026 | 2,743 | 1,467,809 | 0 | 31 | 2,636 | 34,897 |
| 2002 | 4,058 | 2,748 | 1,476,567 | 0 | 32 | 2,722 | 35,843 |
| 2003 | 4,124 | 2,753 | 1,498,113 | 0 | 33 | 2,808 | 36,799 |
| 2004 | 4,141 | 2,758 | 1,501,541 | 0 | 33 | 2,902 | 37,673 |
| 2005 | 4,207 | 2,763 | 1,522,700 | 0 | 34 | 2,997 | 38,601 |
| 2006 | 4,264 | 2,768 | 1,540,622 | 0 | 35 | 3,082 | 39,476 |
| 2007 | 4,321 | 2,773 | 1,558,243 | 0 | 35 | 3,169 | 40,341 |
| 2008 | 4,375 | 2,778 | 1,574,949 | 0 | 36 | 3,258 | 41,197 |

**FLORIDA POWER CORPORATION**

SCHEDULE 2.3

HISTORY AND FORECAST OF ENERGY CONSUMPTION AND NUMBER OF CUSTOMERS BY CUSTOMER CLASS

| (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|
| YEAR | SALES FOR RESALE GWh | UTILITY USE & LOSSES GWh | NET ENERGY FOR LOAD GWh | OTHER CUSTOMERS (AVERAGE NO.) | TOTAL NO. OF CUSTOMERS |
| 1989 | 1,529 | 2,195 | 27,847 | 10,269 | 1,101,817 |
| 1990 | 1,548 | 1,377 | 27,805 | 10,983 | 1,135,499 |
| 1991 | 1,411 | 1,799 | 28,389 | 11,555 | 1,159,237 |
| 1992 | 1,471 | 1,817 | 28,702 | 12,229 | 1,182,170 |
| 1993 | 1,695 | 2,020 | 30,243 | 15,077 | 1,214,652 |
| 1994 | 1,819 | 1,680 | 31,174 | 17,181 | 1,243,891 |
| 1995 | 1,846 | 2,322 | 33,667 | 17,774 | 1,271,785 |
| 1996 | 2,089 | 1,841 | 34,715 | 18,034 | 1,292,073 |
| 1997 | 1,758 | 1,997 | 34,605 | 18,562 | 1,314,507 |
| 1998 | 2,340 | 2,036 | 37,763 | 19,013 | 1,340,851 |
| 1999 | 2,975 | 2,376 | 38,393 | 19,616 | 1,369,017 |
| 2000 | 2,913 | 2,329 | 39,228 | 20,171 | 1,394,239 |
| 2001 | 3,083 | 2,387 | 40,367 | 20,729 | 1,419,107 |
| 2002 | 1,582 | 2,101 | 39,525 | 21,286 | 1,443,716 |
| 2003 | 924 | 2,325 | 40,048 | 21,842 | 1,468,069 |
| 2004 | 891 | 2,402 | 40,967 | 22,400 | 1,492,162 |
| 2005 | 864 | 2,447 | 41,911 | 22,955 | 1,515,997 |
| 2006 | 881 | 2,499 | 42,856 | 23,510 | 1,539,837 |
| 2007 | 900 | 2,548 | 43,789 | 24,066 | 1,563,731 |
| 2008 | 919 | 2,598 | 44,714 | 24,621 | 1,587,704 |

**FLORIDA POWER CORPORATION**

SCHEDULE 3.1.1
HISTORY AND FORECAST OF SUMMER PEAK DEMAND (MW)
BASE CASE

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (OTH) | (10) |
|---|---|---|---|---|---|---|---|---|---|---|
| YEAR | TOTAL | WHOLESALE | RETAIL | INTERRUPTIBLE | RESIDENTIAL LOAD MANAGEMENT | RESIDENTIAL CONSERVATION | COMM. / IND. LOAD MANAGEMENT | COMM. / IND. CONSERVATION | OTHER DEMAND REDUCTIONS | NET FIRM DEMAND |
| 1989 | 6,045 | 623 | 4,633 | 276 | 300 | 34 | N/A | 46 | 133 | 5,256 |
| 1990 | 6,166 | 641 | 4,733 | 230 | 342 | 35 | N/A | 49 | 136 | 5,374 |
| 1991 | 6,128 | 684 | 4,699 | 207 | 313 | 36 | N/A | 53 | 136 | 5,383 |
| 1992 | 6,465 | 827 | 4,927 | 186 | 287 | 39 | N/A | 58 | 141 | 5,754 |
| 1993 | 6,913 | 848 | 5,016 | 274 | 502 | 48 | N/A | 70 | 155 | 5,864 |
| 1994 | 6,880 | 801 | 5,003 | 262 | 527 | 52 | N/A | 81 | 154 | 5,804 |
| 1995 | 7,510 | 886 | 5,522 | 284 | 502 | 55 | N/A | 101 | 160 | 6,408 |
| 1996 | 7,464 | 824 | 5,416 | 309 | 528 | 67 | 37 | 116 | 167 | 6,240 |
| 1997 | 7,786 | 872 | 5,696 | 285 | 509 | 78 | 46 | 130 | 170 | 6,568 |
| 1998 | 8,367 | 941 | 6,276 | 291 | 453 | 95 | 43 | 144 | 124 | 7,217 |
| 1999 | 8,455 | 1,458 | 6,096 | 324 | 457 | 108 | 44 | 159 | 76 | 7,554 |
| 2000 | 8,345 | 1,197 | 6,262 | 313 | 450 | 118 | 47 | 160 | 76 | 7,459 |
| 2001 | 8,570 | 1,276 | 6,465 | 301 | 402 | 129 | 50 | 162 | 76 | 7,741 |
| 2002 | 8,301 | 854 | 6,680 | 298 | 341 | 142 | 53 | 162 | 75 | 7,534 |
| 2003 | 7,891 | 289 | 6,874 | 300 | 297 | 155 | 56 | 163 | 75 | 7,163 |
| 2004 | 7,968 | 219 | 7,056 | 297 | 262 | 169 | 59 | 164 | 75 | 7,275 |
| 2005 | 8,165 | 265 | 7,233 | 299 | 231 | 184 | 62 | 164 | 75 | 7,498 |
| 2006 | 8,375 | 325 | 7,405 | 301 | 204 | 198 | 65 | 166 | 75 | 7,730 |
| 2007 | 8,590 | 388 | 7,576 | 303 | 180 | 212 | 68 | 167 | 75 | 7,964 |
| 2008 | 8,805 | 451 | 7,744 | 305 | 159 | 226 | 71 | 167 | 75 | 8,195 |

NOTE : COLUMN (OTH) INCLUDES DEMAND REDUCTIONS FOR LOAD CONTROL PROGRAMS (HEATWORKS AND VOLTAGE REDUCTION) AND CUSTOMER-OWNED SELF-SERVICE COGENERATION.

TOTAL AND NET FIRM DEMAND COLUMNS DO NOT INCLUDE RESIDENTIAL AND COMM. / IND. CONSERVATION.

**FLORIDA POWER CORPORATION**

SCHEDULE 3.1.2
HISTORY AND FORECAST OF SUMMER PEAK DEMAND (MW)
HIGH LOAD FORECAST

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (OTH) | (10) |
|---|---|---|---|---|---|---|---|---|---|---|
| YEAR | TOTAL | WHOLESALE | RETAIL | INTERRUPTIBLE | RESIDENTIAL LOAD MANAGEMENT | RESIDENTIAL CONSERVATION | COMM. / IND. LOAD MANAGEMENT | COMM. / IND. CONSERVATION | OTHER DEMAND REDUCTIONS | NET FIRM DEMAND |
| 1989 | 6,045 | 623 | 4,633 | 276 | 300 | 34 | N/A | 46 | 133 | 5,256 |
| 1990 | 6,166 | 641 | 4,733 | 230 | 342 | 35 | N/A | 49 | 136 | 5,374 |
| 1991 | 6,128 | 684 | 4,699 | 207 | 313 | 36 | N/A | 53 | 136 | 5,383 |
| 1992 | 6,465 | 827 | 4,927 | 186 | 287 | 39 | N/A | 58 | 141 | 5,754 |
| 1993 | 6,913 | 848 | 5,016 | 274 | 502 | 48 | N/A | 70 | 155 | 5,864 |
| 1994 | 6,880 | 801 | 5,003 | 262 | 527 | 52 | N/A | 81 | 154 | 5,804 |
| 1995 | 7,510 | 886 | 5,522 | 284 | 502 | 55 | N/A | 101 | 160 | 6,408 |
| 1996 | 7,464 | 824 | 5,416 | 309 | 528 | 67 | 37 | 116 | 167 | 6,240 |
| 1997 | 7,786 | 872 | 5,696 | 285 | 509 | 78 | 46 | 130 | 170 | 6,568 |
| 1998 | 8,367 | 941 | 6,276 | 291 | 453 | 95 | 43 | 144 | 124 | 7,217 |
| 1999 | 8,609 | 1,458 | 6,250 | 324 | 457 | 108 | 44 | 159 | 76 | 7,708 |
| 2000 | 8,500 | 1,197 | 6,417 | 313 | 450 | 118 | 47 | 160 | 76 | 7,614 |
| 2001 | 8,767 | 1,276 | 6,662 | 301 | 402 | 129 | 50 | 162 | 76 | 7,938 |
| 2002 | 8,531 | 854 | 6,910 | 298 | 341 | 142 | 53 | 162 | 75 | 7,764 |
| 2003 | 8,125 | 289 | 7,108 | 300 | 297 | 155 | 56 | 163 | 75 | 7,397 |
| 2004 | 8,255 | 219 | 7,343 | 297 | 262 | 169 | 59 | 164 | 75 | 7,562 |
| 2005 | 8,482 | 265 | 7,550 | 299 | 231 | 184 | 62 | 164 | 75 | 7,815 |
| 2006 | 8,728 | 325 | 7,758 | 301 | 204 | 198 | 65 | 166 | 75 | 8,083 |
| 2007 | 8,966 | 388 | 7,952 | 303 | 180 | 212 | 68 | 167 | 75 | 8,340 |
| 2008 | 9,246 | 451 | 8,185 | 305 | 159 | 226 | 71 | 167 | 75 | 8,636 |

NOTE : COLUMN (OTH) INCLUDES DEMAND REDUCTIONS FOR LOAD CONTROL PROGRAMS (HEATWORKS AND VOLTAGE REDUCTION) AND CUSTOMER-OWNED SELF-SERVICE COGENERATION.

TOTAL AND NET FIRM DEMAND COLUMNS DO NOT INCLUDE RESIDENTIAL AND COMM. / IND. CONSERVATION.

FLORIDA POWER CORPORATION

SCHEDULE 3.1.3
HISTORY AND FORECAST OF SUMMER PEAK DEMAND (MW)
LOW LOAD FORECAST

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (OTH) | (10) |
|---|---|---|---|---|---|---|---|---|---|---|
| YEAR | TOTAL | WHOLESALE | RETAIL | INTERRUPTIBLE | RESIDENTIAL LOAD MANAGEMENT | RESIDENTIAL CONSERVATION | COMM. / IND. LOAD MANAGEMENT | COMM. / IND. CONSERVATION | OTHER DEMAND REDUCTIONS | NET FIRM DEMAND |
| 1989 | 6,045 | 623 | 4,633 | 276 | 300 | 34 | N/A | 46 | 133 | 5,256 |
| 1990 | 6,166 | 641 | 4,733 | 230 | 342 | 35 | N/A | 49 | 136 | 5,374 |
| 1991 | 6,128 | 684 | 4,699 | 207 | 313 | 36 | N/A | 53 | 136 | 5,383 |
| 1992 | 6,465 | 827 | 4,927 | 186 | 287 | 39 | N/A | 58 | 141 | 5,754 |
| 1993 | 6,913 | 848 | 5,016 | 274 | 502 | 48 | N/A | 70 | 155 | 5,864 |
| 1994 | 6,880 | 801 | 5,003 | 262 | 527 | 52 | N/A | 81 | 154 | 5,804 |
| 1995 | 7,510 | 886 | 5,522 | 284 | 502 | 55 | N/A | 101 | 160 | 6,408 |
| 1996 | 7,464 | 824 | 5,416 | 309 | 528 | 67 | 37 | 116 | 167 | 6,240 |
| 1997 | 7,786 | 872 | 5,696 | 285 | 509 | 78 | 46 | 130 | 170 | 6,568 |
| 1998 | 7,577 | 941 | 5,486 | 291 | 453 | 95 | 43 | 144 | 124 | 6,427 |
| 1999 | 8,313 | 1,458 | 5,954 | 324 | 457 | 108 | 44 | 159 | 76 | 7,412 |
| 2000 | 8,170 | 1,197 | 6,087 | 313 | 450 | 118 | 47 | 160 | 76 | 7,284 |
| 2001 | 8,383 | 1,276 | 6,278 | 301 | 402 | 129 | 50 | 162 | 76 | 7,554 |
| 2002 | 8,084 | 854 | 6,463 | 298 | 341 | 142 | 53 | 162 | 75 | 7,317 |
| 2003 | 7,643 | 289 | 6,626 | 300 | 297 | 155 | 56 | 163 | 75 | 6,915 |
| 2004 | 7,685 | 219 | 6,773 | 297 | 262 | 169 | 59 | 164 | 75 | 6,992 |
| 2005 | 7,853 | 265 | 6,921 | 299 | 231 | 184 | 62 | 164 | 75 | 7,186 |
| 2006 | 8,018 | 325 | 7,048 | 301 | 204 | 198 | 65 | 166 | 75 | 7,373 |
| 2007 | 8,204 | 388 | 7,190 | 303 | 180 | 212 | 68 | 167 | 75 | 7,578 |
| 2008 | 8,351 | 451 | 7,290 | 305 | 159 | 226 | 71 | 167 | 75 | 7,741 |

NOTE : COLUMN (OTH) INCLUDES DEMAND REDUCTIONS FOR LOAD CONTROL PROGRAMS (HEATWORKS AND VOLTAGE REDUCTION) AND CUSTOMER-OWNED SELF-SERVICE COGENERATION.

TOTAL AND NET FIRM DEMAND COLUMNS DO NOT INCLUDE RESIDENTIAL AND COMM. / IND. CONSERVATION.

**FLORIDA POWER CORPORATION**

SCHEDULE 3.2.1
HISTORY AND FORECAST OF WINTER PEAK DEMAND (MW)
BASE CASE

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (OTH) | (10) |
|---|---|---|---|---|---|---|---|---|---|---|
| YEAR | TOTAL | WHOLESALE | RETAIL | INTERRUPTIBLE | RESIDENTIAL LOAD MANAGEMENT | RESIDENTIAL CONSERVATION | COMM. / IND. LOAD MANAGEMENT | COMM. / IND. CONSERVATION | OTHER DEMAND REDUCTIONS | NET FIRM DEMAND |
| 1988/89 | 6,873 | 639 | 5,261 | 237 | 493 | 52 | N/A | 44 | 147 | 5,900 |
| 1989/90 | 7,366 | 958 | 5,656 | 0 | 503 | 52 | N/A | 47 | 150 | 6,614 |
| 1990/91 | 6,312 | 796 | 4,574 | 196 | 490 | 51 | N/A | 52 | 153 | 5,370 |
| 1991/92 | 7,159 | 1,005 | 5,063 | 210 | 611 | 60 | N/A | 55 | 155 | 6,068 |
| 1992/93 | 6,516 | 876 | 4,608 | 150 | 599 | 67 | N/A | 57 | 159 | 5,484 |
| 1993/94 | 7,185 | 1,004 | 4,901 | 199 | 759 | 90 | N/A | 67 | 165 | 5,905 |
| 1994/95 | 8,975 | 1,169 | 6,223 | 280 | 997 | 101 | N/A | 74 | 131 | 7,392 |
| 1995/96 | 10,350 | 1,486 | 7,263 | 45 | 1,146 | 105 | 10 | 94 | 201 | 8,749 |
| 1996/97 | 8,486 | 1,228 | 5,624 | 290 | 901 | 133 | 16 | 104 | 190 | 6,852 |
| 1997/98 | 7,717 | 908 | 5,419 | 318 | 645 | 119 | 18 | 122 | 168 | 6,327 |
| 1998/99 | 9,420 | 1,527 | 6,489 | 322 | 874 | 183 | 18 | 120 | 190 | 8,016 |
| 1999/00 | 9,611 | 1,575 | 6,646 | 312 | 865 | 204 | 21 | 120 | 192 | 8,221 |
| 2000/01 | 9,837 | 1,668 | 6,791 | 300 | 859 | 228 | 24 | 121 | 195 | 8,459 |
| 2001/02 | 9,575 | 1,266 | 7,005 | 297 | 790 | 254 | 27 | 121 | 190 | 8,271 |
| 2002/03 | 9,170 | 720 | 7,193 | 299 | 743 | 281 | 30 | 122 | 185 | 7,913 |
| 2003/04 | 9,248 | 666 | 7,354 | 296 | 713 | 310 | 33 | 123 | 186 | 8,020 |
| 2004/05 | 9,445 | 728 | 7,504 | 298 | 690 | 339 | 36 | 124 | 189 | 8,232 |
| 2005/06 | 9,656 | 806 | 7,649 | 300 | 670 | 369 | 39 | 125 | 192 | 8,455 |
| 2006/07 | 9,868 | 883 | 7,794 | 302 | 652 | 399 | 42 | 125 | 195 | 8,677 |
| 2007/08 | 10,084 | 963 | 7,937 | 304 | 637 | 428 | 45 | 125 | 198 | 8,900 |
| 2008/09 | 10,304 | 1,046 | 8,079 | 306 | 623 | 456 | 49 | 126 | 201 | 9,125 |

NOTE : COLUMN (OTH) INCLUDES DEMAND REDUCTIONS FOR LOAD CONTROL PROGRAMS (HEATWORKS AND VOLTAGE REDUCTION) AND CUSTOMER-OWNED SELF-SERVICE COGENERATION.

TOTAL AND NET FIRM DEMAND COLUMNS DO NOT INCLUDE RESIDENTIAL AND COMM. / IND. CONSERVATION.

FLORIDA POWER CORPORATION

SCHEDULE 3.2.2
HISTORY AND FORECAST OF WINTER PEAK DEMAND (MW)
HIGH LOAD FORECAST

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (OTH) | (10) |
|---|---|---|---|---|---|---|---|---|---|---|
| YEAR | TOTAL | WHOLESALE | RETAIL | INTERRUPTIBLE | RESIDENTIAL LOAD MANAGEMENT | RESIDENTIAL CONSERVATION | COMM. / IND. LOAD MANAGEMENT | COMM. / IND. CONSERVATION | OTHER DEMAND REDUCTIONS | NET FIRM DEMAND |
| 1988/89 | 6,873 | 639 | 5,261 | 237 | 493 | 52 | N/A | 44 | 147 | 5,900 |
| 1989/90 | 7,366 | 958 | 5,656 | 0 | 503 | 52 | N/A | 47 | 150 | 6,614 |
| 1990/91 | 6,312 | 796 | 4,574 | 196 | 490 | 51 | N/A | 52 | 153 | 5,370 |
| 1991/92 | 7,159 | 1,005 | 5,063 | 210 | 611 | 60 | N/A | 55 | 155 | 6,068 |
| 1992/93 | 6,516 | 876 | 4,608 | 150 | 599 | 67 | N/A | 57 | 159 | 5,484 |
| 1993/94 | 7,185 | 1,004 | 4,901 | 199 | 759 | 90 | N/A | 67 | 165 | 5,905 |
| 1994/95 | 8,975 | 1,169 | 6,223 | 280 | 997 | 101 | N/A | 74 | 131 | 7,392 |
| 1995/96 | 10,350 | 1,486 | 7,263 | 45 | 1,146 | 105 | 10 | 94 | 201 | 8,749 |
| 1996/97 | 8,486 | 1,228 | 5,624 | 290 | 901 | 133 | 16 | 104 | 190 | 6,852 |
| 1997/98 | 7,717 | 908 | 5,419 | 318 | 645 | 119 | 18 | 122 | 168 | 6,327 |
| 1998/99 | 9,594 | 1,527 | 6,663 | 322 | 874 | 183 | 18 | 120 | 190 | 8,190 |
| 1999/00 | 9,785 | 1,575 | 6,820 | 312 | 865 | 204 | 21 | 120 | 192 | 8,395 |
| 2000/01 | 10,058 | 1,668 | 7,012 | 300 | 859 | 228 | 24 | 121 | 195 | 8,680 |
| 2001/02 | 9,832 | 1,266 | 7,262 | 297 | 790 | 254 | 27 | 121 | 190 | 8,528 |
| 2002/03 | 9,430 | 720 | 7,453 | 299 | 743 | 281 | 30 | 122 | 185 | 8,173 |
| 2003/04 | 9,567 | 666 | 7,673 | 296 | 713 | 310 | 33 | 123 | 186 | 8,339 |
| 2004/05 | 9,795 | 728 | 7,854 | 298 | 690 | 339 | 36 | 124 | 189 | 8,582 |
| 2005/06 | 10,044 | 806 | 8,037 | 300 | 670 | 369 | 39 | 125 | 192 | 8,843 |
| 2006/07 | 10,280 | 883 | 8,206 | 302 | 652 | 399 | 42 | 125 | 195 | 9,089 |
| 2007/08 | 10,566 | 963 | 8,419 | 304 | 637 | 428 | 45 | 125 | 198 | 9,382 |
| 2008/09 | 10,854 | 1,046 | 8,629 | 306 | 623 | 456 | 49 | 126 | 201 | 9,675 |

NOTE : COLUMN (OTH) INCLUDES DEMAND REDUCTIONS FOR LOAD CONTROL PROGRAMS (HEATWORKS AND VOLTAGE REDUCTION) AND CUSTOMER-OWNED SELF-SERVICE COGENERATION.

TOTAL AND NET FIRM DEMAND COLUMNS DO NOT INCLUDE RESIDENTIAL AND COMM. / IND. CONSERVATION.

FLORIDA POWER CORPORATION

SCHEDULE 3.2.3
HISTORY AND FORECAST OF WINTER PEAK DEMAND (MW)
LOW LOAD FORECAST

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (OTH) | (10) |
|---|---|---|---|---|---|---|---|---|---|---|
| YEAR | TOTAL | WHOLESALE | RETAIL | INTERRUPTIBLE | RESIDENTIAL LOAD MANAGEMENT | RESIDENTIAL CONSERVATION | COMM. / IND. LOAD MANAGEMENT | COMM. / IND. CONSERVATION | OTHER DEMAND REDUCTIONS | NET FIRM DEMAND |
| 1988/89 | 6,873 | 639 | 5,261 | 237 | 493 | 52 | N/A | 44 | 147 | 5,900 |
| 1989/90 | 7,366 | 958 | 5,656 | 0 | 503 | 52 | N/A | 47 | 150 | 6,614 |
| 1990/91 | 6,312 | 796 | 4,574 | 196 | 490 | 51 | N/A | 52 | 153 | 5,370 |
| 1991/92 | 7,159 | 1,005 | 5,063 | 210 | 611 | 60 | N/A | 55 | 155 | 6,068 |
| 1992/93 | 6,516 | 876 | 4,608 | 150 | 599 | 67 | N/A | 57 | 159 | 5,484 |
| 1993/94 | 7,185 | 1,004 | 4,901 | 199 | 759 | 90 | N/A | 67 | 165 | 5,905 |
| 1994/95 | 8,975 | 1,169 | 6,223 | 280 | 997 | 101 | N/A | 74 | 131 | 7,392 |
| 1995/96 | 10,350 | 1,486 | 7,263 | 45 | 1,146 | 105 | 10 | 94 | 201 | 8,749 |
| 1996/97 | 8,486 | 1,228 | 5,624 | 290 | 901 | 133 | 16 | 104 | 190 | 6,852 |
| 1997/98 | 7,717 | 908 | 5,419 | 318 | 645 | 119 | 18 | 122 | 168 | 6,327 |
| 1998/99 | 9,259 | 1,527 | 6,328 | 322 | 874 | 183 | 18 | 120 | 190 | 7,855 |
| 1999/00 | 9,414 | 1,575 | 6,449 | 312 | 865 | 204 | 21 | 120 | 192 | 8,024 |
| 2000/01 | 9,627 | 1,668 | 6,581 | 300 | 859 | 228 | 24 | 121 | 195 | 8,249 |
| 2001/02 | 9,332 | 1,266 | 6,762 | 297 | 790 | 254 | 27 | 121 | 190 | 8,028 |
| 2002/03 | 8,894 | 720 | 6,917 | 299 | 743 | 281 | 30 | 122 | 185 | 7,637 |
| 2003/04 | 8,934 | 666 | 7,040 | 296 | 713 | 310 | 33 | 123 | 186 | 7,706 |
| 2004/05 | 9,100 | 728 | 7,159 | 298 | 690 | 339 | 36 | 124 | 189 | 7,887 |
| 2005/06 | 9,263 | 806 | 7,256 | 300 | 670 | 369 | 39 | 125 | 192 | 8,062 |
| 2006/07 | 9,445 | 883 | 7,371 | 302 | 652 | 399 | 42 | 125 | 195 | 8,254 |
| 2007/08 | 9,588 | 963 | 7,441 | 304 | 637 | 428 | 45 | 125 | 198 | 8,404 |
| 2008/09 | 9,772 | 1,046 | 7,547 | 306 | 623 | 456 | 49 | 126 | 201 | 8,593 |

NOTE : COLUMN (OTH) INCLUDES DEMAND REDUCTIONS FOR LOAD CONTROL PROGRAMS (HEATWORKS AND VOLTAGE REDUCTION) AND CUSTOMER-OWNED SELF-SERVICE COGENERATION.

TOTAL AND NET FIRM DEMAND COLUMNS DO NOT INCLUDE RESIDENTIAL AND COMM. / IND. CONSERVATION.

**FLORIDA POWER CORPORATION**

SCHEDULE 3.3.1
HISTORY AND FORECAST OF ANNUAL NET ENERGY FOR LOAD (GWh)
BASE CASE

| (1) | (2) | (3) | (4) | (OTH) | (5) | (6) | (7) | (8) | (9) |
|---|---|---|---|---|---|---|---|---|---|
| YEAR | TOTAL | RESIDENTIAL CONSERVATION | COMM. / IND. CONSERVATION | OTHER ENERGY REDUCTIONS | RETAIL | WHOLESALE | UTILITY USE & LOSSES | NET ENERGY FOR LOAD | LOAD FACTOR % |
| 1989 | 28,606 | 165 | 131 | 463 | 24,123 | 1,529 | 2,195 | 27,847 | 51.8 |
| 1990 | 28,629 | 173 | 145 | 506 | 24,880 | 1,548 | 1,377 | 27,805 | 46.6 |
| 1991 | 29,219 | 166 | 156 | 509 | 25,179 | 1,411 | 1,799 | 28,389 | 53.5 |
| 1992 | 29,561 | 174 | 170 | 516 | 25,414 | 1,471 | 1,817 | 28,702 | 46.8 |
| 1993 | 31,150 | 188 | 195 | 524 | 26,528 | 1,695 | 2,020 | 30,243 | 55.5 |
| 1994 | 32,135 | 205 | 220 | 536 | 27,675 | 1,819 | 1,680 | 31,174 | 51.2 |
| 1995 | 34,682 | 219 | 246 | 549 | 29,499 | 1,846 | 2,322 | 33,667 | 49.8 |
| 1996 | 35,797 | 235 | 285 | 562 | 30,785 | 2,089 | 1,841 | 34,715 | 44.9 |
| 1997 | 35,739 | 254 | 317 | 563 | 30,850 | 1,758 | 1,997 | 34,605 | 57.7 |
| 1998 | 38,936 | 275 | 333 | 565 | 33,387 | 2,340 | 2,036 | 37,763 | 68.1 |
| 1999 | 39,601 | 297 | 344 | 568 | 33,042 | 2,975 | 2,376 | 38,393 | 54.7 |
| 2000 | 40,456 | 313 | 345 | 570 | 33,986 | 2,913 | 2,329 | 39,228 | 54.3 |
| 2001 | 41,612 | 329 | 347 | 569 | 34,897 | 3,083 | 2,387 | 40,367 | 54.5 |
| 2002 | 40,790 | 347 | 348 | 569 | 35,843 | 1,582 | 2,101 | 39,525 | 54.6 |
| 2003 | 41,333 | 366 | 350 | 569 | 36,799 | 924 | 2,325 | 40,048 | 57.8 |
| 2004 | 42,275 | 385 | 351 | 572 | 37,673 | 891 | 2,402 | 40,967 | 58.2 |
| 2005 | 43,239 | 405 | 353 | 570 | 38,601 | 864 | 2,447 | 41,911 | 58.1 |
| 2006 | 44,206 | 425 | 354 | 571 | 39,476 | 881 | 2,499 | 42,856 | 57.9 |
| 2007 | 45,160 | 444 | 356 | 571 | 40,341 | 900 | 2,548 | 43,789 | 57.6 |
| 2008 | 46,108 | 463 | 357 | 573 | 41,197 | 919 | 2,598 | 44,714 | 57.2 |

NOTE : COLUMN (OTH) INCLUDES CONSERVATION ENERGY FOR LIGHTING AND PUBLIC AUTHORITY CUSTOMERS, CUSTOMER-OWNED SELF-SERVICE COGENERATION AND LOAD CONTROL PROGRAMS.

**FLORIDA POWER CORPORATION**

SCHEDULE 3.3.2
HISTORY AND FORECAST OF ANNUAL NET ENERGY FOR LOAD (GWh)
HIGH LOAD FORECAST

| (1) | (2) | (3) | (4) | (OTH) | (5) | (6) | (7) | (8) | (9) |
|---|---|---|---|---|---|---|---|---|---|
| YEAR | TOTAL | RESIDENTIAL CONSERVATION | COMM. / IND. CONSERVATION | OTHER ENERGY REDUCTIONS | RETAIL | WHOLESALE | UTILITY USE & LOSSES | NET ENERGY FOR LOAD | LOAD FACTOR % |
| 1989 | 28,606 | 165 | 131 | 463 | 24,123 | 1,529 | 2,195 | 27,847 | 51.8 |
| 1990 | 28,629 | 173 | 145 | 506 | 24,880 | 1,548 | 1,377 | 27,805 | 46.6 |
| 1991 | 29,219 | 166 | 156 | 509 | 25,179 | 1,411 | 1,799 | 28,389 | 53.5 |
| 1992 | 29,561 | 174 | 170 | 516 | 25,414 | 1,471 | 1,817 | 28,702 | 46.8 |
| 1993 | 31,150 | 188 | 195 | 524 | 26,528 | 1,695 | 2,020 | 30,243 | 55.5 |
| 1994 | 32,135 | 205 | 220 | 536 | 27,675 | 1,819 | 1,680 | 31,174 | 51.2 |
| 1995 | 34,682 | 219 | 246 | 549 | 29,499 | 1,846 | 2,322 | 33,667 | 49.8 |
| 1996 | 35,797 | 235 | 285 | 562 | 30,785 | 2,089 | 1,841 | 34,715 | 44.9 |
| 1997 | 35,739 | 254 | 317 | 563 | 30,850 | 1,758 | 1,997 | 34,605 | 57.7 |
| 1998 | 38,936 | 275 | 333 | 565 | 33,387 | 2,340 | 2,036 | 37,763 | 68.1 |
| 1999 | 40,381 | 297 | 344 | 568 | 33,779 | 2,975 | 2,419 | 39,173 | 54.6 |
| 2000 | 41,253 | 313 | 345 | 570 | 34,730 | 2,913 | 2,382 | 40,024 | 54.3 |
| 2001 | 42,626 | 329 | 347 | 569 | 35,849 | 3,083 | 2,449 | 41,381 | 54.4 |
| 2002 | 41,966 | 347 | 348 | 569 | 36,961 | 1,582 | 2,160 | 40,702 | 54.5 |
| 2003 | 42,553 | 366 | 350 | 569 | 37,941 | 924 | 2,402 | 41,268 | 57.6 |
| 2004 | 43,772 | 385 | 351 | 572 | 39,084 | 891 | 2,489 | 42,464 | 58.0 |
| 2005 | 44,900 | 405 | 353 | 570 | 40,165 | 864 | 2,544 | 43,572 | 58.0 |
| 2006 | 46,054 | 425 | 354 | 571 | 41,222 | 881 | 2,603 | 44,705 | 57.7 |
| 2007 | 47,147 | 444 | 356 | 571 | 42,206 | 900 | 2,669 | 45,776 | 57.5 |
| 2008 | 48,443 | 463 | 357 | 573 | 43,393 | 919 | 2,738 | 47,049 | 57.1 |

NOTE : COLUMN (OTH) INCLUDES CONSERVATION ENERGY FOR LIGHTING AND PUBLIC AUTHORITY CUSTOMERS, CUSTOMER-OWNED SELF-SERVICE COGENERATION AND LOAD CONTROL PROGRAMS.

**FLORIDA POWER CORPORATION**

SCHEDULE 3.3.3
HISTORY AND FORECAST OF ANNUAL NET ENERGY FOR LOAD (GWh)
LOW LOAD FORECAST

| (1) | (2) | (3) | (4) | (OTH) | (5) | (6) | (7) | (8) | (9) |
|---|---|---|---|---|---|---|---|---|---|
| YEAR | TOTAL | RESIDENTIAL CONSERVATION | COMM. / IND. CONSERVATION | OTHER ENERGY REDUCTIONS | RETAIL | WHOLESALE | UTILITY USE & LOSSES | NET ENERGY FOR LOAD | LOAD FACTOR % |
| 1989 | 28,606 | 165 | 131 | 463 | 24,123 | 1,529 | 2,195 | 27,847 | 51.8 |
| 1990 | 28,629 | 173 | 145 | 506 | 24,880 | 1,548 | 1,377 | 27,805 | 46.6 |
| 1991 | 29,219 | 166 | 156 | 509 | 25,179 | 1,411 | 1,799 | 28,389 | 53.5 |
| 1992 | 29,561 | 174 | 170 | 516 | 25,414 | 1,471 | 1,817 | 28,702 | 46.8 |
| 1993 | 31,150 | 188 | 195 | 524 | 26,528 | 1,695 | 2,020 | 30,243 | 55.5 |
| 1994 | 32,135 | 205 | 220 | 536 | 27,675 | 1,819 | 1,680 | 31,174 | 51.2 |
| 1995 | 34,682 | 219 | 246 | 549 | 29,499 | 1,846 | 2,322 | 33,667 | 49.8 |
| 1996 | 35,797 | 235 | 285 | 562 | 30,785 | 2,089 | 1,841 | 34,715 | 44.9 |
| 1997 | 35,739 | 254 | 317 | 563 | 30,850 | 1,758 | 1,997 | 34,605 | 57.7 |
| 1998 | 38,936 | 275 | 333 | 565 | 33,387 | 2,340 | 2,036 | 37,763 | 68.1 |
| 1999 | 38,874 | 297 | 344 | 568 | 32,363 | 2,975 | 2,328 | 37,665 | 54.7 |
| 2000 | 39,563 | 313 | 345 | 570 | 33,144 | 2,913 | 2,278 | 38,335 | 54.4 |
| 2001 | 40,648 | 329 | 347 | 569 | 33,992 | 3,083 | 2,328 | 39,403 | 54.5 |
| 2002 | 39,672 | 347 | 348 | 569 | 34,787 | 1,582 | 2,038 | 38,407 | 54.6 |
| 2003 | 40,042 | 366 | 350 | 569 | 35,584 | 924 | 2,248 | 38,757 | 57.9 |
| 2004 | 40,800 | 385 | 351 | 572 | 36,284 | 891 | 2,316 | 39,492 | 58.3 |
| 2005 | 41,600 | 405 | 353 | 570 | 37,059 | 864 | 2,349 | 40,272 | 58.3 |
| 2006 | 42,332 | 425 | 354 | 571 | 37,709 | 881 | 2,393 | 40,982 | 58.0 |
| 2007 | 43,121 | 444 | 356 | 571 | 38,427 | 900 | 2,423 | 41,751 | 57.7 |
| 2008 | 43,715 | 463 | 357 | 573 | 38,940 | 919 | 2,463 | 42,321 | 57.3 |

NOTE : COLUMN (OTH) INCLUDES CONSERVATION ENERGY FOR LIGHTING AND PUBLIC AUTHORITY CUSTOMERS, CUSTOMER-OWNED SELF-SERVICE COGENERATION AND LOAD CONTROL PROGRAMS.

FLORIDA POWER CORPORATION

SCHEDULE 4

PREVIOUS YEAR ACTUAL AND TWO-YEAR FORECAST OF PEAK DEMAND AND NET ENERGY FOR LOAD BY MONTH

| (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|---|---|---|---|---|---|
| | ACTUAL | | FORECAST | | FORECAST | |
| | 1998 | | 1999 | | 2000 | |
| MONTH | PEAK DEMAND MW | NEL GWh | PEAK DEMAND MW | NEL GWh | PEAK DEMAND MW | NEL GWh |
| JANUARY | 6,097 | 2,639 | 8,016 | 2,935 | 8,221 | 2,996 |
| FEBRUARY | 6,156 | 2,478 | 7,350 | 2,669 | 7,558 | 2,708 |
| MARCH | 6,885 | 2,726 | 6,418 | 2,816 | 6,579 | 2,828 |
| APRIL | 5,630 | 2,612 | 5,395 | 2,640 | 5,482 | 2,750 |
| MAY | 7,066 | 3,281 | 6,440 | 3,458 | 6,547 | 3,567 |
| JUNE | 7,906 | 4,054 | 7,258 | 3,631 | 7,159 | 3,713 |
| JULY | 8,004 | 3,991 | 7,424 | 3,990 | 7,328 | 4,072 |
| AUGUST | 7,808 | 3,962 | 7,554 | 3,995 | 7,459 | 4,073 |
| SEPTEMBER | 7,235 | 3,450 | 7,187 | 3,618 | 7,088 | 3,691 |
| OCTOBER | 7,034 | 3,231 | 6,057 | 2,973 | 6,213 | 3,042 |
| NOVEMBER | 5,387 | 2,619 | 5,797 | 2,678 | 5,926 | 2,719 |
| DECEMBER | 5,948 | 2,720 | 7,327 | 2,990 | 7,455 | 3,069 |
| TOTAL | | 37,763 | | 38,393 | | 39,228 |

## FUEL REQUIREMENTS and ENERGY SOURCES

FPC's two-year actual and ten-year projected nuclear, coal, oil, and gas requirements (by fuel units) are shown on Schedule 5. FPC's two-year actual and ten-year projected energy sources in GWh and percent, are shown by fuel type on Schedules 6.1 and 6.2, respectively. FPC's fuel requirements and energy sources reflect a diverse fuel supply system which is not dependent on any one fuel source. FPC expects its fuel diversity to be further enhanced with the addition of future planned combined cycle generation units fueled by natural gas. Natural gas consumption is projected to increase as plants are added to meet future load growth. FPC's coal, nuclear, and purchased power requirements are projected to remain relatively stable over the planning horizon.

FLORIDA POWER CORPORATION

SCHEDULE 5

FUEL REQUIREMENTS

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | -ACTUAL- | -ACTUAL- | | | | | | | | | | |
| FUEL REQUIREMENTS | | | UNITS | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
| (1) | NUCLEAR | | TRILLION BTU | 0 | 60 | 58 | 65 | 62 | 65 | 65 | 62 | 65 | 62 | 65 | 62 |
| (2) | COAL | | 1,000 TON | 6,080 | 5,713 | 5,533 | 5,369 | 5,505 | 5,452 | 5,580 | 5,645 | 5,412 | 5,521 | 5,308 | 5,442 |
| (3) | RESIDUAL | TOTAL | 1,000 BBL | 9,124 | 10,906 | 5,667 | 5,289 | 6,013 | 5,299 | 5,760 | 5,933 | 5,059 | 5,575 | 4,376 | 5,248 |
| (4) | | STEAM | 1,000 BBL | 9,124 | 10,906 | 5,667 | 5,289 | 6,013 | 5,299 | 5,760 | 5,933 | 5,059 | 5,575 | 4,376 | 5,248 |
| (5) | | CC | 1,000 BBL | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| (6) | | CT | 1,000 BBL | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| (7) | | DIESEL | 1,000 BBL | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| (8) | DISTILLATE | TOTAL | 1,000 BBL | 1,108 | 1,873 | 916 | 719 | 702 | 516 | 371 | 515 | 276 | 335 | 237 | 272 |
| (9) | | STEAM | 1,000 BBL | 81 | 111 | 132 | 124 | 136 | 109 | 99 | 102 | 109 | 105 | 112 | 107 |
| (10) | | CC | 1,000 BBL | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| (11) | | CT | 1,000 BBL | 1,027 | 1,762 | 784 | 595 | 566 | 407 | 272 | 413 | 167 | 230 | 125 | 165 |
| (12) | | DIESEL | 1,000 BBL | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| (13) | NATURAL GAS | TOTAL | 1,000 MCF | 23,644 | 25,348 | 54,524 | 55,195 | 61,450 | 56,310 | 53,450 | 61,115 | 69,478 | 75,215 | 86,719 | 89,583 |
| (14) | | STEAM | 1,000 MCF | 3,599 | 1,260 | 5,689 | 5,713 | 5,434 | 4,344 | 3,070 | 3,810 | 2,409 | 2,618 | 2,429 | 2,471 |
| (15) | | CC | 1,000 MCF | 5,793 | 11,200 | 27,113 | 31,962 | 31,978 | 32,559 | 32,478 | 35,637 | 53,685 | 55,675 | 72,725 | 72,625 |
| (16) | | CT | 1,000 MCF | 14,252 | 12,888 | 21,722 | 17,520 | 24,038 | 19,407 | 17,902 | 21,668 | 13,384 | 16,922 | 11,565 | 14,487 |
| (17) | OTHER (SPECIFY) | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**FLORIDA POWER CORPORATION**

SCHEDULE 6.1

ENERGY SOURCES (GWh)

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | -ACTUAL- | -ACTUAL- | | | | | | | | | | |
| | ENERGY SOURCES | | UNITS | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
| (1) | ANNUAL FIRM INTERCHANGE 1 / | | GWh | 1,138 | -422 | -197 | 73 | 93 | 77 | 72 | 85 | 102 | 106 | 89 | 98 |
| (2) | NUCLEAR | | GWh | 0 | 5,863 | 5,473 | 6,085 | 5,800 | 6,068 | 6,068 | 5,813 | 6,068 | 5,795 | 6,068 | 5,813 |
| (3) | COAL | | GWh | 15,977 | 14,892 | 14,591 | 14,171 | 14,602 | 14,469 | 14,855 | 15,026 | 14,356 | 14,657 | 14,039 | 14,411 |
| (4) | RESIDUAL | TOTAL | GWh | 5,875 | 7,031 | 3,695 | 3,488 | 3,955 | 3,499 | 3,832 | 3,942 | 3,353 | 3,675 | 2,906 | 3,466 |
| (5) | | STEAM | GWh | 5,875 | 7,031 | 3,695 | 3,488 | 3,955 | 3,499 | 3,832 | 3,942 | 3,353 | 3,675 | 2,906 | 3,466 |
| (6) | | CC | GWh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| (7) | | CT | GWh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| (8) | | DIESEL | GWh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| (9) | DISTILLATE | TOTAL | GWh | 436 | 762 | 357 | 270 | 259 | 184 | 123 | 186 | 76 | 105 | 57 | 75 |
| 10) | | STEAM | GWh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11) | | CC | GWh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12) | | CT | GWh | 436 | 762 | 357 | 270 | 259 | 184 | 123 | 186 | 76 | 105 | 57 | 75 |
| 13) | | DIESEL | GWh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 14) | NATURAL GAS | TOTAL | GWh | 2,283 | 2,498 | 5,469 | 5,899 | 6,405 | 6,041 | 5,917 | 6,679 | 8,737 | 9,299 | 11,462 | 11,641 |
| 15) | | STEAM | GWh | 351 | 140 | 189 | 182 | 182 | 68 | 40 | 65 | 11 | 24 | 10 | 11 |
| 16) | | CC | GWh | 789 | 1,216 | 3,639 | 4,317 | 4,340 | 4,405 | 4,396 | 4,873 | 7,587 | 7,889 | 10,456 | 10,430 |
| 17) | | CT | GWh | 1,143 | 1,142 | 1,641 | 1,400 | 1,883 | 1,568 | 1,481 | 1,741 | 1,139 | 1,386 | 996 | 1,200 |
| 18) | OTHER 2 / | | | | | | | | | | | | | | |
| | QF PURCHASES | | GWh | 6,311 | 5,419 | 6,085 | 6,101 | 6,085 | 6,085 | 6,085 | 6,101 | 6,085 | 6,085 | 6,085 | 6,101 |
| | IMPORT FROM OUT OF STATE | | GWh | 2,649 | 2,179 | 2,920 | 3,141 | 3,168 | 3,102 | 3,096 | 3,135 | 3,134 | 3,134 | 3,083 | 3,109 |
| | EXPORT TO OUT OF STATE | | GWh | -64 | -459 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 19) | NET ENERGY FOR LOAD | | GWh | 34,605 | 37,763 | 38,393 | 39,228 | 40,367 | 39,525 | 40,048 | 40,967 | 41,911 | 42,856 | 43,789 | 44,714 |

1 / NET ENERGY PURCHASED (+) OR SOLD (-) WITHIN PENINSULAR FLORIDA.

2 / NET ENERGY PURCHASED (+) OR SOLD (-).

**FLORIDA POWER CORPORATION**

SCHEDULE 6.2

ENERGY SOURCES (PERCENT)

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | -ACTUAL- | -ACTUAL- | | | | | | | | | | |
| | ENERGY SOURCES | | UNITS | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
| (1) | ANNUAL FIRM INTERCHANGE 1 / | | % | 3.3% | -1.1% | -0.5% | 0.2% | 0.2% | 0.2% | 0.2% | 0.2% | 0.2% | 0.2% | 0.2% | 0.2% |
| (2) | NUCLEAR | | % | 0.0% | 15.5% | 14.3% | 15.5% | 14.4% | 15.4% | 15.2% | 14.2% | 14.5% | 13.5% | 13.9% | 13.0% |
| (3) | COAL | | % | 46.2% | 39.4% | 38.0% | 36.1% | 36.2% | 36.6% | 37.1% | 36.7% | 34.3% | 34.2% | 32.1% | 32.2% |
| (4) | RESIDUAL | TOTAL | % | 17.0% | 18.6% | 9.6% | 8.9% | 9.8% | 8.9% | 9.6% | 9.6% | 8.0% | 8.6% | 6.6% | 7.8% |
| (5) | | STEAM | % | 17.0% | 18.6% | 9.6% | 8.9% | 9.8% | 8.9% | 9.6% | 9.6% | 8.0% | 8.6% | 6.6% | 7.8% |
| (6) | | CC | % | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| (7) | | CT | % | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| (8) | | DIESEL | % | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| (9) | DISTILLATE | TOTAL | % | 1.3% | 2.0% | 0.9% | 0.7% | 0.6% | 0.5% | 0.3% | 0.5% | 0.2% | 0.2% | 0.1% | 0.2% |
| 10) | | STEAM | % | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 11) | | CC | % | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 12) | | CT | % | 1.3% | 2.0% | 0.9% | 0.7% | 0.6% | 0.5% | 0.3% | 0.5% | 0.2% | 0.2% | 0.1% | 0.2% |
| 13) | | DIESEL | % | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 14) | NATURAL GAS | TOTAL | % | 6.6% | 6.6% | 14.2% | 15.0% | 15.9% | 15.3% | 14.8% | 16.3% | 20.8% | 21.7% | 26.2% | 26.0% |
| 15) | | STEAM | % | 1.0% | 0.4% | 0.5% | 0.5% | 0.5% | 0.2% | 0.1% | 0.2% | 0.0% | 0.1% | 0.0% | 0.0% |
| 16) | | CC | % | 2.3% | 3.2% | 9.5% | 11.0% | 10.8% | 11.1% | 11.0% | 11.9% | 18.1% | 18.4% | 23.9% | 23.3% |
| 17) | | CT | % | 3.3% | 3.0% | 4.3% | 3.6% | 4.7% | 4.0% | 3.7% | 4.2% | 2.7% | 3.2% | 2.3% | 2.7% |
| 18) | OTHER 2 / | | | | | | | | | | | | | | |
| | QF PURCHASES | | % | 18.2% | 14.4% | 15.8% | 15.6% | 15.1% | 15.4% | 15.2% | 14.9% | 14.5% | 14.2% | 13.9% | 13.6% |
| | IMPORT FROM OUT OF STATE | | % | 7.7% | 5.8% | 7.6% | 8.0% | 7.8% | 7.8% | 7.7% | 7.7% | 7.5% | 7.3% | 7.0% | 7.0% |
| | EXPORT TO OUT OF STATE | | % | -0.2% | -1.2% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 19) | NET ENERGY FOR LOAD | | % | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |

1 / NET ENERGY PURCHASED (+) OR SOLD (-) WITHIN PENINSULAR FLORIDA.

2 / NET ENERGY PURCHASED (+) OR SOLD (-).

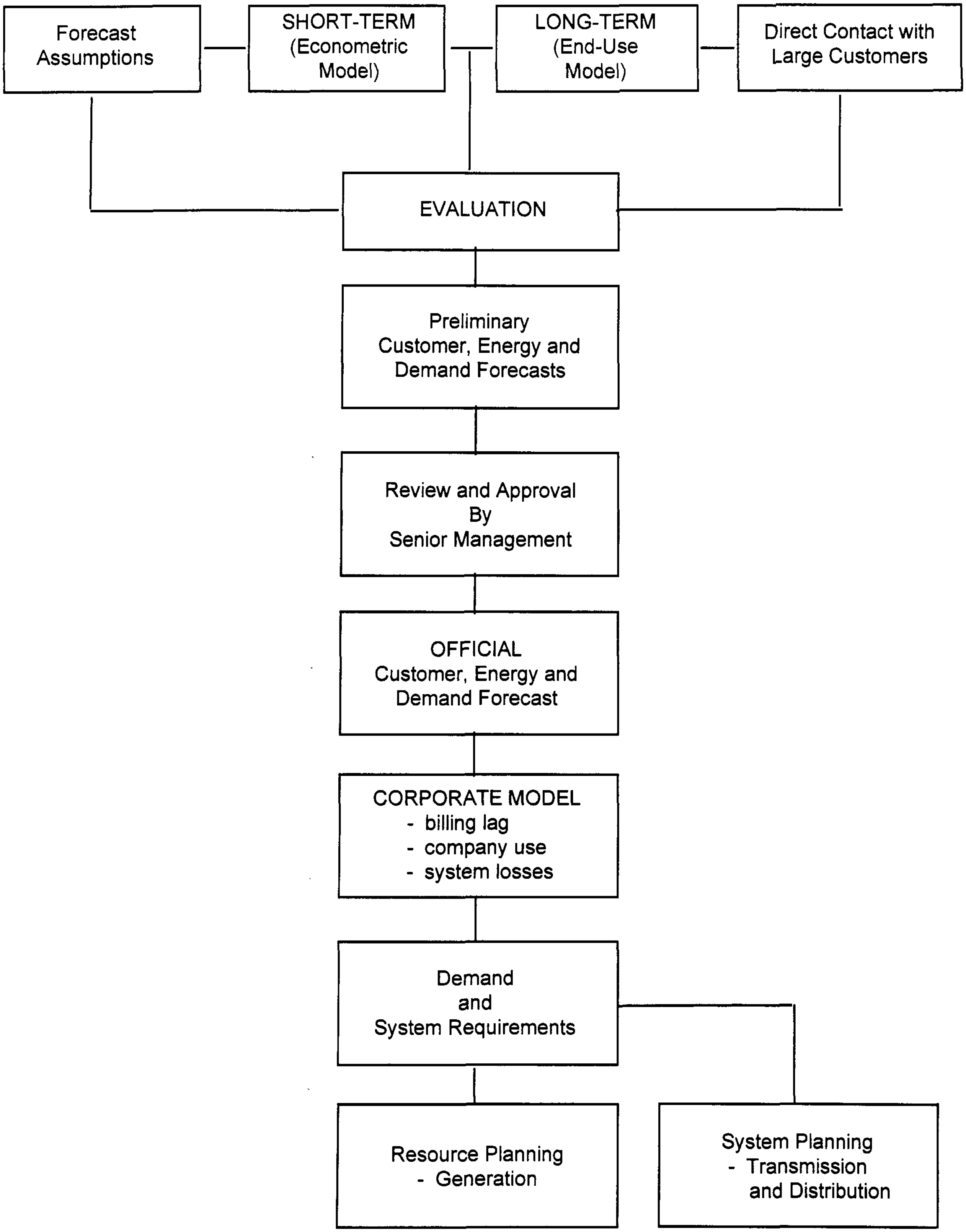
# FORECASTING METHODS AND PROCEDURES

## INTRODUCTION

The need for accurate forecasts of long-range electric energy consumption, customer growth, peak demand and system load shape is a crucial planning function for any electric utility. Accurate projections of a utility's future load growth require forecasting methodologies with the ability to account for a variety of factors influencing electric energy usage in both the short- and long-term planning horizons. FPC's forecasting framework utilizes the System for Hourly and Annual Peak and Energy Simulation (SHAPES-PC) end-use forecasting system as well as short-term econometric models to achieve this end. This chapter will describe the underlying methodology of both the econometric and end-use models including the assumptions incorporated within each. Also included is a description as to how Demand-Side Management (DSM) impacts affect the forecast, the development of high and low forecast scenarios and a review of DSM programs.

The following flow diagram entitled "Customer, Energy and Demand Forecast" gives a general description of FPC's forecasting process. Highlighted in the diagram is the blending of short-term and long-term modeling techniques based on a specific set of assumptions. Also accounted for is some direct contact with large customers. These inputs provide the forecaster at FPC with the tools needed to frame the most likely scenario of the company's future demand.

# CUSTOMER, ENERGY AND DEMAND FORECAST



## FORECAST ASSUMPTIONS

The first step in any forecasting effort is the development of assumptions upon which the forecast is based. The Load Forecasting section of the Financial Analysis Department develops these assumptions based on discussions with a number of departments within FPC, as well as through the research efforts of a number of external sources. These assumptions specify major factors that influence the level of customers, energy sales, or peak demand over the forecast horizon. The following set of assumptions form the basis for the forecast presented in this document.

## GENERAL ASSUMPTIONS

1. Normal weather conditions are assumed. Normal weather reflects a ten-year average of service-area-weighted degree days in order to project kilowatt-hour sales. A twenty-year average of service area weighted temperatures at time of system seasonal peak is assumed to forecast megawatt peak demand.

2. The population projection produced by the Bureau of Economic and Business Research (BEBR) at the University of Florida provides the basis for development of the customer forecast. This forecast incorporates "Population Studies," Bulletin No. 120, February 1998 as well as The Florida Long Term Forecast 1998.

3. FPC's energy intensive phosphate mining customers consumed 33 percent of total industrial class energy sales in 1997. This industry has consolidated in the past few years leaving just a handful of players influencing supply conditions in the marketplace. A reduction in power consumption in this sector is assumed in this forecast as IMC-Agrico mines out several locations within FPC territory. The return of some portion of this load in the Hardee county mining area is possible before the end of the forecast horizon but is not assumed. Some loss of off-peak energy sales to Cargill has been factored into the forecast due to the rearrangement of output from their self-service generator and corresponding purchase power agreement with FPC. The outlook for increased power consumption in this industry recognizes the risks brought on by current and expected competitive pressures to serve high-use customers as well as political risks in dealing with foreign markets. Consequently, the projection of possible load additions has been tempered in the post-2000 time period.

4. Florida Power Corporation supplies capacity and energy service to wholesale customers on a "full", "partial" and "supplemental" requirements basis. Full requirements customers' demand and energy are assumed to grow at rates determined by projected population levels as well as projected economic activity. Partial requirements customers' load is assumed to

reflect the current contractual obligations received by FPC. The forecast of energy and demand from partial requirements customers reflect their ability to receive dispatched energy from the Florida broker system any time it is more economical to do so. FPC's arrangement with Seminole Electric Cooperative, Incorporated is to serve "supplemental" service over and above committed levels of self-generation and firm purchase contracts. SECI's projection of their system's demand and energy requirements serves as the basis for our projection of this customer's supplemental service requirements.

This forecast also includes four wholesale bulk power contracts. The first is a multi-part contract with SECI to serve 605 MW for three years beginning in 1999. An option to extend 455 MW of this load for an additional seven years existed but was not exercised. The remaining 150 MW, a stratified intermediate contract transferred from the supplemental service contract, is assumed to continue through the year 2002. A second 3-year agreement with SECI to sell up to 300 MW of peaking capacity beginning in 2000 has also been reflected in the forecast. The other two bulk power contracts are summer 1999 firm contract sales for 200 MW and 75 MW with Georgia Power Company and the Municipal Electric Authority of Georgia, respectively.

5. This forecast incorporates demand and energy reductions from FPC'S dispatchable and non-dispatchable DSM programs that have been proposed to the Florida Public Service Commission in the 1999 Conservation Goals Docket.

6. The expected energy and demand impacts of self-service cogeneration are subtracted from the forecast. The forecast assumes that FPC will supply the supplemental load of self-service cogeneration customers. Supplemental load is defined as the cogeneration customers' total electric load requirements less their normal generation output. While FPC offers "standby" service to all cogeneration customers, this forecast does not assume an unplanned need for standby power during peak periods.

7. This forecast assumes that the regulatory environment and the obligation to serve will continue throughout the forecast horizon. Wholesale customers that have given notice of contract termination are not included in the projections of energy and demand once their contract term expires.

8. The economic outlook for this 20-year forecast attempts to reflect the short-term outlook for the current business cycle as well as the long-term trend behavior for the economy. It is important to note however, that identification of the long-term trend in economic/demographic conditions represents the primary focus of this forecast. The purpose of the short-term outlook is only to show how the current business cycle is expected to evolve and eventually blend into the long-term. Beyond the short-term time horizon, only the long-run trends in economic and demographic conditions that cut through the peaks and troughs of future business cycles are considered in this forecast.

## SHORT-TERM ECONOMIC ASSUMPTIONS

The economic outlook for this 5-year forecast calls for moderating economic growth throughout the forecast horizon. No "shocks" to any supply or demand conditions in the national economy are expected and thus no economic recession is incorporated in this forecast. The unemployment rate nationwide has reached a 28-year low. This has resulted in greater spending power for the consumer and a high level of optimism in the economy. Looking ahead however, growth will be slower than recently experienced for either of the two following reasons. First, Federal Reserve Board (FRB) efforts to restrain inflationary pressures will ultimately result in the application of tighter monetary policy. This will lead to higher interest rates in the short-term thereby slowing the economy. Secondly, the crisis in Asia, which has significantly dampened U.S. exports to that area and increased the level of imports, will hurt the U.S. manufacturing sector, lower overall consumer optimism and possibly restrict credit growth. Increased domestic pessimism will restrict lending as well as spending.

Beyond 1999, Federal government efforts to balance the federal budget and maintain fiscal restraint will continue to place downward pressure on interest rates. Lower government spending means it will be less of a consumer in the national economy and lighten demand for credit in the marketplace.

On a regional basis, interest rate levels will continue to influence the pace of economic growth in Florida through their impacts on the construction, retirement and tourism industries. Personal income growth is expected to continue growing but not at the torrid pace experienced in recent years. Employment growth will moderate from the strong pace experienced in past years resulting in slower growth in total wages. Slower growth in hourly earnings as well as transfer payments should also hold down income growth in the years ahead. Export related job growth is expected to fair well in the future as the state has positioned itself well for trade with Latin America. The strong dollar of late may stall further job gains in this sector temporarily, but the globalization of the world economy will encourage Florida exports as well as attract higher numbers of foreign tourists to Florida.

Average use per residential customer will continue to grow as electricity prices are projected to decline in real dollar terms. Also contributing to this trend are homebuilders' surveys reporting increased median square footage in new homes and new apartments constructed. New housing preferences have continued to reflect larger living quarters than that seen in the existing housing stock.

## LONG-TERM ECONOMIC ASSUMPTIONS

The long-term economic outlook assumes that changes in economic and demographic conditions will follow a trended behavior pattern. The main focus involves identifying these trends. No attempt is made to predict business cycle fluctuations during this period.

### Population Growth Trends

This forecast assumes Florida will experience slower in-migration and population growth over the long term, as reflected in the BEBR projections.

- Florida's climate and low cost of living have historically attracted a major share of the retirement population from the eastern half of the United States. This will continue to occur, but at less than historic rates for two reasons. First, Americans entering retirement age during the late 1990s and early twenty-first century were born during the Great Depression era of the 1930s. This decade experienced a low birth rate due to the economic conditions at that time. Sixty years later, there now exists a smaller pool of retirees capable of migrating to Florida. Second, the enormous growth in population and corresponding development of the 1980s made portions of Florida less desirable for retirement living. This diminished the quality of retiree life, and along with increasing competition from neighboring states, is expected to cause a slight decline in Florida's share of these prospective new residents over the long term.

- With the bulk of Florida's in-migrants under age 45, the baby boom generation born between 1945 and 1963 helped fuel the rapid population increase Florida experienced during the 1980s. Coupling this with two other events of the 1980s -- airline deregulation that lowered airfares, increasing accessibility to Florida, and a recession in the oil-producing states that historically pulled a percentage of their labor pools from Florida -- one begins to realize that these conditions will not recur in the foreseeable future. In fact, slower population in-migration to Florida can be expected as the baby boom generation enters the 40's and 50's age bracket. This age group has been significantly characterized as immobile when studies focusing on interstate population flows or job changes are conducted.

**Economic Growth Trends**

- Florida's rapid population growth of the 1980s created a period of strong job creation, especially in the service sector industries. While the service-oriented economy expanded to support an increasing population level, there were also significant numbers of corporations migrating to Florida capitalizing on the low cost, low tax business environment. In this situation, increased job opportunities in Florida created greater in-migration among the nation's working age population. Florida's ability to attract businesses from other states because of its "comparative advantage" is expected to continue throughout the forecast period. Of long-term concern, however, is the passage of the North American Free Trade Agreement (NAFTA). At risk here is the bypassing of Florida by companies looking to relocate to a lower cost foreign environment. Mexico is expected to attract a formidable share of American manufacturing jobs that may have moved to Florida. Also, the stability of Florida's citrus and vegetable industry may be threatened when faced with greater competition from Mexico as tariffs are eliminated.

- The forecast assumes negative growth in real electricity price. That is, the change in the nominal, or current dollar, price of electricity over time is expected to be less than the overall rate of inflation. This also implies that fuel price escalation will track at or below the general rate of inflation throughout the forecast horizon.

- Real personal incomes are assumed to increase throughout the forecast period thereby boosting the average customer's ability to purchase electricity -- especially since the price of electricity is expected to increase at a rate below general inflation. As incomes grow faster than the price of electricity, consumers will remain inclined to purchase additional electric appliances and increase their utilization of existing end-uses.

## FORECAST METHODOLOGY

The long-term forecast of MWh sales is produced utilizing SHAPES-PC, a large-scale end-use computer model. FPC has also developed short-term econometric models as a supplement to the long-term SHAPES-PC methodology. These short-term models are expressly designed to better capture the short-term business cycle fluctuations preceding the long-term trend path of customers' energy usage and peak demand. In particular, the monthly periodicity studied in this approach better captures near-term perturbations than the end-use forecasting framework. Also, easier and more timely model updates enable the short-term econometric model to more readily incorporate the most recent projections of input variables. Output from these short-term econometric models is used to develop the first five years of the load forecast. The SHAPES-PC model output is then used as the basis for the remaining years of the forecast horizon.

## SHORT-TERM ECONOMETRIC MODEL

In the short-term econometric models, energy sales in major revenue classes that have historically shown a relationship to weather and economic/demographic indicators are modeled using monthly equations. Sales are regressed against "driver" variables that best explain monthly fluctuations over a historical sample period. Forecasts of these input variables are either derived internally or come from a review of the latest projections made by several independent forecasting concerns. These include Data Resources Incorporated (DRI), the University of Florida's Bureau of Economic and Business Research and Blue Chip Economic Indicators. Internal company forecasts are used for projections of electric price, weather conditions and the average number of monthly billing days. Projections of FPC's energy efficiency program impacts (conservation program reductions) and direct load control reductions are also incorporated into the forecast. Specific sectors are modeled as follows:

## Residential Sector

Residential kWh usage per customer is modeled as a function of real Florida personal income, cooling degree days, heating degree days, the real price of electricity to the residential class and the average number of billing days in each sales month. This equation captures short-term movements in customer usage. Projections of kWh usage per customer combined with the customer forecast provide the forecast of total residential energy sales. The residential customer forecast is developed by correlating annual net new customers with FPC service area population growth. County level population projections are provided by the BEBR.

## Commercial Sector

Commercial kWh use per customer is forecast based on commercial (non-agricultural, non-manufacturing and non-governmental) employment, the average number of billing days in each sales month and heating and cooling degree days. The measure of cooling degree days utilized here differs slightly from that used in the residential sector reflecting the unique behavior pattern of this class with respect to its cooling needs. Commercial customers are projected as a function of the number of residential customers served.

## Industrial Sector

Energy sales to this sector are separated into two sub-sectors. A significant portion of industrial energy use, 33 percent in 1997, was consumed by the phosphate mining industry. Because this one industry dominates such a significant share of the total industrial class, it is separated and modeled apart from the rest of the class. The term "non-phosphate industrial" is used to refer to those customers who comprise the remaining portion of total industrial class sales. Both groups are impacted by changes in short-term economic activity. However, adequately explaining sales levels require separate explanatory variables. Non-phosphate industrial energy sales are modeled using the U.S. industrial production index for manufacturing (excluding motor vehicles), the real price of electricity to the industrial class, and the average number of sales month billing days. The particular industrial production index used in this equation best characterizes the industry make-up of the FPC service area that lacks a significant automotive manufacturing sector.

The industrial phosphate mining industry is modeled using customer-specific information with respect to expected market conditions. Since this sub-sector is comprised of only five customers, the final forecast is heavily dependent upon information received from direct customer contact. FPC industrial customer representatives provide specific phosphate customer information regarding customer production schedules, area mine-out and start-up predictions, and changes in self-generation or energy supply situations over the near-term forecast horizon.

## Other Retail Sectors

### Street Lighting

Electricity sales to the street lighting class are projected to increase due to growth in the service area population base. Residential customers provide an excellent source of FPC specific data with which to capture the trends in historic and future population growth over time. A linear regression model based on the number of residential customers as well as the number of daylight hours per month is used to forecast street lighting MWh sales.

### Public Authorities

Energy sales to public authorities (SPA), comprised mostly of government operated services, is also projected using the short-term monthly econometric approach. The level of government services, and thus energy use per customer, can be tied to the population base, as well as to the state of the economy. Factors affecting population growth will impact the need for additional governmental services (i.e., schools, city services, etc.) thereby increasing SPA energy usage per customer. Monthly government employment has been determined to be the best indicator of the level of government services provided. This variable, adjusted for the number of SPA customers, along with heating and cooling degree days the real price of electricity and the average number of sales month billing days, result in a significant level of explained variation over the historical sample period. Intercept shift variables are also included in this model to account for the large change in school-related energy use in the billing months of January, July and August. SPA customers are projected linearly as a function of a time-trend.

## Sales For Resale Sector

The Sales for Resale sector encompasses all firm sales to other electric power entities. This includes sales to other utilities (municipal or investor owned) as well as power agencies (Rural Electric Authority or Municipal).

Seminole Electric Cooperative, Incorporated (SECI) is a wholesale, or sales for resale, customer of FPC on both a supplemental contract basis and contract demand basis. Under the supplemental contract FPC provides service for those energy requirements above the level of generation capacity served by either SECI's own facilities or firm purchase obligations. SECI provides FPC with a forecast of total monthly peak demands and energy for their load within the FPC control area. Monthly supplemental demands are calculated from the total demand levels they project in FPC's control area less their own ("committed") resources. Beyond supplemental service, FPC has signed two bulk power or "contract demand" agreements with SECI to serve stratified intermediate and peaking load. The first contract, an October 1995 agreement, has three pieces that impact the load and energy forecast in the years 1999 to 2001. The first two parts of this contract involve a 300 MW structured capacity sale and a 155 MW stratified peaking sale. The option to extend this sale for seven additional years beginning in 2002 was not exercised by SECI. The third piece of the contract involves serving 150 MW of stratified intermediate demand and is assumed to end in 2002. The load tied to this piece of the contract was carved out of the supplemental "pay as you take" contract and restructured to a contract demand. The second bulk power agreement with SECI, a three year contract signed in July 1997, also involves load that would otherwise have been served via the supplemental service agreement. Beginning in the year 2000, FPC will supply 150 MW of stratified peaking demand. The amount of load increases to 300 MW in 2001 and 2002.

One remaining year on a contract demand agreement with Georgia Power Company (GPC) is also included in the forecast. This contract is for FPC to supply GPC summer peaking capacity of 200 MW in 1999. The full amount of the contracted MW is expected to be called upon by the customer, but with a low load factor. An additional summer sales contract to serve the Municipal Electric Authority of Georgia in 1999 is also incorporated into the summer demand forecast at 75 MW.

The municipal sales for resale class includes a number of customers, divergent not only in scope of service, (i.e., full or partial requirement), but also in composition of ultimate consumers. Each customer is modeled separately in order to accurately reflect its individual profile. The majority of customers in this class are municipalities whose full energy requirements are met by FPC. The full requirement customers are modeled individually using local weather station data and population growth trends for that vicinity. Since the ultimate consumers of electricity in this sector are, to a large degree, residential and commercial customers, it is assumed that their use patterns will follow those of the FPC retail-based residential and commercial customer classes. FPC serves partial requirement service (PR) to a municipality, New Smyrna Beach, a power authority (Florida Municipal Power Agency) and a utility district (Reedy Creek Improvement District). In each case, these customers contract with FPC for a specific level and type of demand needed to provide their particular electrical system with an appropriate level of reliability. The terms of each contract are subject to change each year. This means that the level and type of demand under contract can increase or decrease for each year of their contract. The demand forecast for each PR wholesale customer is derived using its historical coincident demand to contract demand relationship (including transmission delivery losses). The demand projections for the Florida Municipal Power Agency (FMPA) also include a "losses service" MW amount to account for the transmission losses FPC incurs when "wheeling" power to their customers in FPC's transmission area. The contract demand level for each PR customer in its last contract year determines the load upon the FPC system for the remaining years of the forecast horizon unless the customer has notified FPC of a willingness to not renew their contract.

The methodology for projecting MWh energy usage for the partial requirement (PR) customers differs slightly from customer to customer. This category of service is sporadic in nature and exceptionally difficult to forecast because PR customers are capable of "brokering" their FPC capacity to purchase energy from other lower cost resources. For example, FMPA utilizes FPC's wholesale energy service only when more economical energy is unavailable. The forecast for FMPA is derived using annual historical load factor calculations to provide the expected level of energy sales based on the level of contracted MW nominated by FMPA. Average monthly-to-annual energy ratios are applied to the forecast in order to obtain monthly profiles. For Reedy Creek and New Smyrna Beach, recent growth trends and historic load factor calculations are utilized to provide the expected level of MWh sales. Again, these customers have alternative sources of supply to meet their needs. Purchases of energy from FPC will depend heavily on the price of available energy from other sources in the marketplace.

## Demand-Side Management

Each projection of every retail class-of-business MWh energy sales forecast is reduced by estimated future energy savings due to FPC-sponsored and Florida Public Service Commission (FPSC)-approved dispatchable and non-dispatchable Demand-Side Management programs. Estimated energy savings for every non-dispatchable DSM program are calculated on a program-by-program basis and aggregated for each class-of-business on the program. Dispatchable DSM program energy savings are estimated within the Resource Planning Department's production costing models. These models determine the most cost-effective means to meet system requirements, including load control. The DSM projections incorporated in this demand and energy forecast match the proposed goals submitted in February 1999 as required under Docket No. 971005-EG Adoption of Numeric Conservation Goals.

## LONG-TERM SHAPES-PC MODEL

### Energy Forecast

In the SHAPES-PC model the projections of the various economic and demographic parameters are combined with consumption estimates and patterns of electricity usage to produce projections of annual energy consumption. The basic concept underlying the model's structure involves breaking out numerous end-use categories for electricity consumption in order to establish homogeneous groups to forecast. SHAPES-PC is partitioned into three consumer categories: residential, commercial and industrial.

### Residential Sector

The electricity consuming units in the residential sector are major household appliances. A total of seventeen major household appliances are explicitly treated in the model. The first step in estimating demand is to predict the number of units of each appliance type in the service area in a given year. The appliance stock is estimated as the saturation rate for a given appliance multiplied by the total number of residential customers. Appliance saturation rates are projected using an S-shaped logistic saturation function based on historical data from appliance saturation surveys and service area real personal income. The second major factor in the demand estimation equation is the connected load of the appliance. The term "connected load" is defined here as the power requirements or wattage of the appliance. This will tend to change over time as relative energy prices, appliance efficiencies and features change.

The last factor in the demand equation is the probability of the appliance operating at a given time. This term is called the use factor. It is necessary to distinguish between temperature, or weather sensitive use factors, and temperature insensitive use factors. The temperature insensitive use factors depend only on time, i.e., time of day, type of day and season. The type of day is important since weekday energy usage for many appliances differs from that of weekend and holiday usage. Similarly, there are seasonal variations in the use of many temperature insensitive appliances such as lighting. For other appliances, such as air conditioners, electric space heaters, and heat pumps, use factors depend not only on time of day, but also on temperature. These use factors indicate the probability of a space-conditioning device operating at a given time of day, day type and temperature. Combining the heating and cooling use factors with the expected occurrence of temperature conditions in a given period yields the energy requirements for that period. By specifying a temperature profile for a given day, the model is capable of simulating the weather sensitive load corresponding to that temperature profile.

## Industrial Sector

The industrial sector model is designed to forecast energy consumption levels associated with selected manufacturing industries. Electric energy consumption in the industrial sector is significantly tied to the level of economic activity. The major driving forces affecting energy consumption are the real price of electricity, the level of economic activity in the service area, and the technologies, or processes, of the industries involved. Since energy requirements for a given measure of economic activity vary from one industry to another, it is necessary to assess the mix of the industrial sector. To capture the effect of industrial mix, the industrial sector is disaggregated into twelve categories. Thus, by projecting energy usage independently for each

2-digit Standard Industrial Code (SIC) category, the model captures changes in energy consumption due to changes in the industrial base.

There are numerous ways of measuring economic activity in the industrial sector. Due to the ready availability of historic employment data on a 2-digit SIC level, employment was used as this measure of activity. The level of annual energy consumption in any one of the twelve industries is calculated by multiplying the projected level of economic activity (expressed in employment) by the projected energy intensity (expressed as KWh usage per employee) of that sector. The calculation of energy intensity for each sector also incorporates the industrial production and capacity utilization indices for each sector to "normalize" the level of electric energy used per unit of output.

## Commercial Sector

In the commercial sector, forecasts of annual energy consumption are derived for those customers falling into private, non-manufacturing business-types. Historic commercial energy sales are categorized into ten separate "building types" (e.g., retail, office, grocery, etc.) which are modeled individually. Commercial electricity consumption is determined by multiplying the floor space in each of these ten building categories by the energy intensity per square foot by category. This is done for three distinct end-uses: base (non-weather sensitive), heating and cooling. Floor space projections are developed based on a combination of historic and projected floor space per employee and employment projections by building type. Energy intensity per square foot is projected by building type using time trends with considerations for the three end-uses (i.e., weather sensitivity and base use). The model also factors in the influence of electric price on energy usage decisions as well as expected end-use saturation levels. Projections of KWh usage per square foot along with projected square footage for each building type yield commercial sector energy sales.

## Customer Forecast

An increasing service area population translates directly into a greater number of homes requiring electricity and, consequently, into a greater number of commercial establishments to service these residences. Service area population serves as the driver for residential and (implicitly) commercial customers, which comprise 98.4 percent of FPC total customers. The Bureau of Economic and Business Research at the University of Florida provides population estimates and projections for the FPC service area that are used in the development of the residential customer forecast. In order to determine future residential customer growth, historic growth in residential customers is regressed against historic growth in service area population. The resulting statistical coefficients are then applied to the population growth forecast. Future commercial and street lighting customers are modeled as a function of total residential customers. Industrial and public authority sector customers are forecast via a time-trend approach given their relatively stable nature.

In the short-term, deviations from trend in the most recent time periods are scrutinized. This analysis, along with any specific input from regional field personnel regarding growth expectations, forms the basis for developing a short-term outlook that is consistent with recent history as well as the long-term projections for all customer classes.

## Peak Demand Forecast

The forecast of peak demand also employs a dual methodology framework. The SHAPES-PC end-use model is used to develop class-of-business load shapes and an econometric approach is used to project specific disaggregated pieces of the demand forecast. Both techniques provide a unique perspective as to the make-up of total system demand.

The SHAPES-PC end-use model uses FPC load research sampled class of business load shapes to develop a weather normalized 8,760 hour (yearly) load shape for the residential, commercial, industrial, and "all other" classes to calibrate historic benchmarks. Projections in MW demand and energy are then based upon growth in residential customers, manufacturing employees, commercial floor space, increased saturation of class end-uses or energy intensity, and price elasticity.

The econometric approach to projecting seasonal peak demand employs a disaggregation technique that separates seasonal (winter and summer) peak hour system demand into five major components. These components consist of potential firm retail load, demand-side management program capability, wholesale demand, company use demand and interruptible demand.

Potential firm retail load refers to projections of FPC retail hourly seasonal peak demand (excluding interruptible/curtailable/standby services) before the cumulative effects of any conservation activity or the activation of FPC's Load Management (LM) program. The historical values of this series are constructed to show the size of FPC's firm retail peak demand had no utility-induced conservation or load control ever taken place. The value of constructing such a "clean" series enables the forecaster to observe and correlate the underlying trend in retail peak demand in the service area to total system customer levels and coincident weather conditions without the impacts of year-to-year variation in conservation activity or load control reductions.

Energy conservation and direct load control estimates from FPC's DSM goals proposed in the 1999 FPSC Conservation Goals Docket are incorporated into the MW forecast. Projections of dispatchable and cumulative non-dispatchable DSM are subtracted from the projection of potential firm retail demand.

Sales For Resale demand projections represent load supplied by FPC to other electric utilities such as Seminole Electric Cooperative, Incorporated, the Florida Municipal Power Agency, and other electric distribution companies. The SECI supplemental demand projection is based on their forecast of their service area within the FPC control area. The level of MW to be served by FPC is dependent upon the amount of resources SECI supplies to itself or contracts with others. An assumption has been made that beyond 2004 - the last year of committed capacity declaration - SECI will hold constant their level of self-serve resources. For the partial requirements customers demand projections, historical ratios of coincident-to-contract levels of demand are applied to future MW contract levels. Demand requirements continue out at the level indicated by the final year in their respective contracts. The full requirement municipal demand forecast is estimated for individual cities using linear econometric equations modeling both weather and economic impacts specific to each locale. The seasonal (winter and summer) projections become the January and August peak values, respectively. The non-seasonal peak months are calculated using monthly allocation factors derived from applying the historical relationship between each winter month (November to March) relative to the winter peak, and each summer month (April to October) in relation to the summer peak demand.

FPC "company use" at the time of system peak is estimated using load research metering studies and is assumed to remain stable over the forecast horizon. The interruptible and curtailable service load component is developed from historic trends, as well as the incorporation of specific information obtained from FPC's industrial service representatives.

Each of the peak demand components described above is a positive value except for the DSM program MW impacts. Since DSM program impacts represent a reduction in peak demand, they are assigned a negative value. Total system peak demand is then calculated as the arithmetic sum of these five components.

Both the end-use methodology and the disaggregated econometric methodology supply necessary information that go into the final projection of system peak demand.

## HIGH AND LOW FORECAST SCENARIOS

The high and low bandwidth scenarios around the base MWh energy sales forecast are developed using a Monte Carlo simulation applied to a multivariate regression model that closely replicates the base retail MWh energy forecast in aggregate. This model accounts for variation in Gross Domestic Product, retail customers and electric price. The base forecasts for these variables were developed based on input from Data Resources Inc. and internal company price projections. Variation around the base forecast predictor variables used in the Monte Carlo simulation was based on an 80 percent confidence interval calculated around variation in each variable's historic growth rate. While the total number of degree days (weather) were also incorporated into the model specification, the high and low scenarios do not attempt to capture extreme weather conditions. Normal weather conditions were assumed in all three scenarios.

The Monte Carlo simulation was produced through the estimation of 1,000 scenarios for each year of the forecast horizon. These simulations allowed for random normal variation in the growth trajectories of the economic input variables (while accounting for cross-correlation amongst these variables), as well as simultaneous variation in the equation (model error) and coefficient estimates. These scenarios were then sorted and rank ordered from one to a thousand, while the simulated scenario with no variation was adjusted to equal the base forecast.

The low retail scenario was chosen from among the ranked scenarios resulting in a bandwidth forecast reflecting an approximate probability of occurrence of .10. The high retail scenario similarly represents a bandwidth forecast with an approximate probability of occurrence of .90.

In both scenarios the high and low peak demand bandwidth forecasts are projected from the energy forecasts using the load factor implicit in the base forecast scenario.

## CONSERVATION

In June 1994, FPC participated in FPSC hearings in Docket No. 930549-EG. A final order, PSC-94-1313-FOF-EG, was issued on October 25, 1994. Pursuant to this order, the FPSC approved the DSM goals for FPC, and required that FPC submit for approval a DSM plan designed to meet the goals. The following tables are the approved DSM goals as well as the achieved results through 1998.

### Residential Conservation Goals

| Year | Cumulative Summer MW Goal | Total Summer MW Achieved | Cumulative Winter MW Goal | Total Winter MW Achieved | Cumulative GWh Goal | Total GWh Achieved |
|---|---|---|---|---|---|---|
| 1994 | 11 | 24 | 43 | 46 | 12 | 15 |
| 1995 | 30 | 43 | 86 | 85 | 24 | 29 |
| 1996 | 50 | 70 | 133 | 137 | 38 | 45 |
| 1997 | 71 | 100 | 184 | 196 | 60 | 66 |
| 1998 | 93 | 126 | 236 | 252 | 78 | 89 |

### Commercial/Industrial Conservation Goals

| Year | Cumulative Summer MW Goal | Total Summer MW Achieved | Cumulative Winter MW Goal | Total Winter MW Achieved | Cumulative GWh Goal | Total GWh Achieved |
|---|---|---|---|---|---|---|
| 1994 | 0.3 | 10 | 0.05 | 10 | 2 | 32 |
| 1995 | 3 | 33 | 3 | 32 | 19 | 81 |
| 1996 | 8 | 48 | 7 | 46 | 40 | 137 |
| 1997 | 15 | 55 | 13 | 52 | 71 | 147 |
| 1998 | 24 | 63 | 20 | 58 | 110 | 158 |

In 1999, the FPSC is planning to set new conservation goals for the ten-year period from 2000 through 2009. In compliance with that docket, FPC has prepared and submitted to the Commission a new conservation goals proposal that is cost effective and reasonably achievable through demand side management. The forecasts presented in this Ten-Year Site Plan document reflect the impacts of those proposed DSM goals. Currently, FPC's DSM plan consists of four residential programs, eight commercial and industrial programs, and one research and development program. These programs were designed using the end-use measures identified during FPC's Integrated Resource Planning process. The programs are also subject to periodic monitoring and evaluation for the purpose of ensuring that all DSM resources are acquired in a cost-effective manner and that the program savings are durable. Following is a brief description of these programs.

## Residential Programs

### Home Energy Check Program

This energy audit program provides customers with an analysis of their current energy use and recommendations on how they can save on their electricity bill through low-cost or no-cost energy-saving practices and measures. The program provides customers with three types of energy audits: Level 1 - customer-completed mail-in audit; Level 2 - free walk-through audit; and Level 3 - paid walk-through audit. The Home Energy Check Program serves as the foundation of the Home Energy Improvement Program in that the audit is a prerequisite for participation in the retrofit of water heaters, heating and air conditioning units.

### Home Energy Improvement Program

This is the umbrella program to improve energy efficiency for existing homes. It combines efficiency improvements to the thermal envelope with upgraded home energy equipment and appliances. The program provides incentives for ceiling insulation upgrades, reduced duct leakage, high efficiency electric heat pumps, heat recovery units, and dedicated heat pump water heaters.

### Residential New Construction Program

This program promotes energy efficient new home construction in order to provide customers with more efficient cooling and heating consumption combined with improved environmental comfort. The program provides education and information to the design and building community on energy efficient building design and construction. The program promotes the sealing of air conditioning duct systems using mastic for lasting results. The program provides incentives to the builder for high efficiency electric heat pumps, heat recovery units and heat pump water heaters. The highest level of the program incorporates the Environmental Protection Agency's Energy Star Homes Program and qualifies participants for cooperative advertising.

### Residential Energy Management Program

This is a voluntary customer program that allows FPC to reduce peak demand and thus defer generation construction. Peak demand is reduced by interrupting service to selected electrical equipment with radio controlled switches installed on the customer's premises. These interruptions are at FPC's option, during specified time periods, and coincident with hours of peak demand. Participating customers receive a monthly credit on their electricity bill.

## Commercial/Industrial (C/I) Programs

### Business Energy Check Program

This energy audit program provides commercial and industrial customers with an assessment of the current energy usage at their facility, recommendations on how they can improve the environmental conditions of their facility while saving on their electricity bill, and information on low-cost energy efficiency measures. The Business Energy Check consists of two types of audits: Level 1 - free walk-through audit, and Level 2 - paid walk-through audit. In most cases, this program is a prerequisite for participation in the other C/I programs.

### Better Business Program

This is the umbrella efficiency program for existing commercial and industrial customers. The program provides customers with information, education, and advice on energy-related issues and incentives on efficiency measures that are cost-effective to FPC and its customers. The Better Business Program promotes energy efficient heating, ventilation, air conditioning (HVAC), motors, and water heating equipment, as well as some building retrofit measures (in particular, roof insulation upgrade, duct leakage test and repair, and window film retrofit).

**Commercial/Industrial New Construction Program**

The primary goal of this program is to foster the design and construction of energy efficient buildings. The new construction program will: 1) provide education and information to the design community on all aspects of energy efficient building design; 2) require that the building design, at a minimum, surpass the state energy code; 3) provide financial incentives for specific energy efficient equipment; and 4) provide energy design awards to building design teams. Incentives will be provided for high efficiency HVAC equipment, motors, heat recovery units, and duct leakage testing and repair.

## Innovation Incentive Program

This program promotes a reduction in demand and energy by subsidizing energy conservation projects for customers in FPC's service territory. The intent of the program is to encourage legitimate energy efficiency measures that reduce KW demand and/or KWh energy, but are not addressed by other programs. Energy efficiency opportunities are identified by FPC representatives during a Business Energy Check audit. If a candidate project meets program specifications, it will be eligible for an incentive payment, subject to FPC approval.

## Commercial Energy Management Program (Rate Schedule GSLM-1)

This direct load control program reduces FPC's demand during peak or emergency conditions. The program is available to customers who have electric space cooling equipment suitable for interruptible operation, and are eligible for service under the Rate Schedule GS-1, GST-1, GSD-1, or GSDT-1. The program is also applicable to customers who have any of the following electrical equipment installed on permanent residential structures and utilized for domestic (household) purposes: 1) water heater(s), 2) central electric heating systems(s), 3) central electric cooling system(s), and/or 4) swimming pool pump(s). The customer will receive a monthly credit on their bill depending on the type of equipment in the program and the interruption schedule.

### Standby Generation Program

This demand control program reduces FPC's demand based upon the indirect control of customer generation equipment. This is a voluntary program available to all commercial, industrial and agricultural customers who have on-site generation capability and are willing to reduce their FPC demand when FPC deems it necessary. The customers participating in the Standby Generation program receive a monthly credit on their electricity bill according to the demonstrated ability of the customer to reduce demand at FPC's request.

### Interruptible Service Program

This direct load control program reduces FPC's demand at times of capacity shortage during peak or emergency conditions. The program is available to qualified non-residential customers who are willing to have their power interrupted. FPC will have remote control of the circuit breaker or disconnect switch supplying the customer's equipment. Customers participating in the Interruptible Service program receive a monthly interruptible demand credit based on their billing demand.

### Curtailable Service

This direct load control program reduces FPC's demand at times of capacity shortage during peak or emergency conditions. The program is available to qualified non-residential customers who are willing to curtail their demand. Customers participating in the Curtailable Service program receive a monthly curtailable demand credit based on their curtailable demand amount.

## Research and Development Program

### Technology Development Program

The purpose of this program is to establish a system to "pursue research, development, and demonstration projects jointly with others as well as individual projects" (Rule 25-17.001, {5}(f), Florida Administrative Code). FPC will undertake certain development and demonstration projects that have promise to become cost-effective demand and energy efficiency programs. In most cases, each demand reduction and energy efficiency project that is proposed and investigated under this program requires field testing with actual customers.

# *CHAPTER 3*

## *Forecast of*
## *FACILITIES REQUIREMENTS*

# CHAPTER 3 Forecast of FACILITIES REQUIREMENTS

## FORECAST OF CAPACITY AND DEMAND OVERVIEW

FPC has a "Total Capacity Resource" of 9,027 MW, as shown in Table 3.1. This capacity resource includes utility (469 MW) and non-utility purchased power (831 MW), peaking facilities (2,820 MW), nuclear (755 MW), and fossil steam and combined cycle plants (4,152 MW). Table 3.2 shows FPC's contracts for firm capacity provided by QFs.

FPC has experienced an excellent level of participation in its Demand-Side Management Programs. Total DSM resources are shown in Schedules 3.1.1 and 3.2.1 of Chapter 2. These programs include Non-Dispatchable DSM, Interruptible Load, and Dispatchable Load Control Resources. FPC's 1999 Ten-Year Site Plan Demand-Side Management projections are consistent with the proposed DSM Goals submitted by FPC in the 1999 FPSC Conservation Goals Docket #971005-EG.

FPC's forecast of capacity and demand is based on serving expected growth in regulated retail load and commitments to existing wholesale customers. As deregulation occurs in the electric industry, customers with choice, such as the wholesale market, are switching to new generation suppliers. This creates an added dimension of uncertainty which a traditional utility is not accustomed to planning for. FPC realizes that the long-term obligation to serve the total wholesale market no longer exists. FPC's remaining wholesale market customers are expected to exercise their option of receiving power from alternative suppliers around the year 2002. To date, a significant amount of the wholesale load has been evaluated through competitive Requests

For Proposals by wholesale customers in Florida. As a result, the company assumes that the wholesale business will be very competitive. FPC is not committing long-term generation resources to serve the wholesale market until a viable plan is in place. FPC believes that the long-term interests of both wholesale and retail customers are being served by this plan.

FPC's forecast of capacity and demand for the summer and winter peaks are shown on Schedules 7.1 and 7.2, respectively. Planned and prospective generating facility additions and changes are shown on Schedule 8 and are referred to as FPC's Base Expansion Plan.

The first phase of FPC's generation expansion plan includes a combined cycle plant at the Hines Energy Complex (HEC) in Polk County. The HEC #1 unit is a state-of-the-art, high efficiency combined cycle plant of approximately 470 MW fueled primarily by natural gas with distillate oil as the back-up fuel. The HEC #1 unit will be one of the most efficient combined cycle plants in the nation.

The second phase of FPC's generation expansion plan includes 300 MW of combustion turbine capacity to be placed in-service by December 2000 at the existing Intercession City (IC) Site. The combustion turbine capacity will consist of three units, or IC P12, 13 & 14, and will be similar to the existing IC units P7-10.

A third phase of FPC's generation expansion plan projects requirements for a second and third unit at the Hines Energy Complex with in-service dates of 2004 and 2006, respectively. A status report and specification for proposed generation and directly associated transmission lines are shown in Schedules 9 and 10, respectively.

Changes in FPC's existing resources include a fossil steam gas conversion at Anclote, peaking gas conversions at Debary P8 and Suwannee P2, and Crystal River capacity upgrades. Also included are plant retirements consistent with FPC's latest plant Depreciation and Dismantlement filing.

The proposed Base Expansion Plan utilizes natural gas and high efficiency combined cycle generation to help meet the requirements of the 1990 Clean Air Act Amendments. Fuel switching, $SO_2$ emission allowance purchases, re-dispatching of generation, and technology changes are other options available to FPC to insure compliance with the 1990 Clean Air Act Amendments.

## TABLE 3.1

## FLORIDA POWER CORPORATION
## TOTAL CAPACITY RESOURCE
### Power Plants, Peaking Units And Purchased Power

| Plants | Number Of Units | Net Dependable Capability KW Winter |
|---|---|---|
| **Nuclear Steam Plant** | | |
| Crystal River | 1 | 755,000* |
| **Fossil Steam & Combined Cycle Plants** | | |
| Crystal River | 4 | 2,276,000 |
| Anclote | 2 | 1,034,000 |
| Paul L. Bartow | 3 | 449,000 |
| Suwannee River | 3 | 147,000 |
| Tiger Bay | 1 | 246,000 |
| Total Fossil | 13 | 4,152,000 |
| Total Steam (Nuclear & Fossil) | 14 | 4,907,000 |
| **Peaking Units** | | |
| DeBary | 10 | 786,000 |
| Intercession City | 11 | 912,000 |
| Bayboro | 4 | 232,000 |
| Bartow | 4 | 217,000 |
| Suwannee | 3 | 201,000 |
| Turner | 4 | 200,000 |
| Higgins | 4 | 148,000 |
| Avon Park | 2 | 64,000 |
| University of Florida | 1 | 42,000 |
| Rio Pinar | 1 | 18,000 |
| Total Peaking | 44 | 2,820,000 |
| **Total Units** | 58 | |
| **Total Net Generating Capability** | | **7,727,000** |
| ** Adjusted for sale of 9.6% of total capacity* | | |
| **Purchased Power** | | |
| Qualifying Facilities | 15 | 831,000 |
| Investor Owned Utilities | 2 | 469,000 |
| **TOTAL CAPACITY RESOURCE** | | **9,027,000** |

| TABLE 3.2<br><br>FLORIDA POWER CORPORATION<br>QUALIFYING FACILITY GENERATION CONTRACTS<br>AS OF DECEMBER 31, 1998 | |
|---|---|
| **FACILITY NAME** | **FIRM CAPACITY – MW** |
| BAY COUNTY RES. RECOV. | 11 |
| CARGILL | 15 |
| CFR-BIOGEN | 74 |
| DADE COUNTY RES. RECOV. | 43 |
| EL DORADO | 114 |
| LAKE COGEN | 110 |
| LAKE COUNTY RES. RECOV. | 13 |
| LFC JEFFERSON | 8 |
| LFC MADISON | 8 |
| MULBERRY | 79 |
| ORLANDO COGEN | 79 |
| PASCO COGEN | 109 |
| PASCO COUNTY RES. RECOV. | 23 |
| PINELLAS COUNTY RES. RECOV. 1 | 40 |
| PINELLAS COUNTY RES. RECOV. 2 | 15 |
| RIDGE GENERATING STATION | 40 |
| ROYSTER | 31 |
| TIMBER ENERGY 1 | 13 |
| US AGRICHEM | 6 |
| **TOTAL** | **831** |

FLORIDA POWER CORPORATION

SCHEDULE 7.1

FORECAST OF CAPACITY, DEMAND AND SCHEDULED MAINTENANCE

AT TIME OF SUMMER PEAK

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | TOTAL INSTALLED CAPACITY | FIRM CAPACITY IMPORT | FIRM CAPACITY EXPORT | | TOTAL CAPACITY AVAILABLE | SYSTEM FIRM SUMMER PEAK DEMAND | RESERVE MARGIN BEFORE MAINTENANCE | | SCHEDULED MAINTENANCE | RESERVE MARGIN AFTER MAINTENANCE | |
| YEAR | MW | MW | MW | QF MW | MW | MW | MW | % OF PEAK | MW | MW | % OF PEAK |
| 1999 | 7,444 | 469 | 275 | 831 | 8,744 | 7,554 | 1,190 | 16% | 0 | 1,190 | 16% |
| 2000 | 7,510 | 469 | 0 | 831 | 8,810 | 7,459 | 1,351 | 18% | 0 | 1,351 | 18% |
| 2001 | 7,759 | 469 | 0 | 831 | 9,059 | 7,741 | 1,318 | 17% | 0 | 1,318 | 17% |
| 2002 | 7,631 | 469 | 0 | 831 | 8,931 | 7,534 | 1,397 | 19% | 0 | 1,397 | 19% |
| 2003 | 7,631 | 469 | 0 | 831 | 8,931 | 7,163 | 1,768 | 25% | 0 | 1,768 | 25% |
| 2004 | 7,488 | 469 | 0 | 831 | 8,788 | 7,275 | 1,513 | 21% | 0 | 1,513 | 21% |
| 2005 | 7,895 | 479 | 0 | 831 | 9,205 | 7,498 | 1,707 | 23% | 0 | 1,707 | 23% |
| 2006 | 7,895 | 479 | 0 | 831 | 9,205 | 7,730 | 1,475 | 19% | 0 | 1,475 | 19% |
| 2007 | 8,390 | 479 | 0 | 831 | 9,700 | 7,964 | 1,736 | 22% | 0 | 1,736 | 22% |
| 2008 | 8,390 | 479 | 0 | 831 | 9,700 | 8,195 | 1,505 | 18% | 0 | 1,505 | 18% |

# FLORIDA POWER CORPORATION

SCHEDULE 7.2

FORECAST OF CAPACITY, DEMAND AND SCHEDULED MAINTENANCE

AT TIME OF WINTER PEAK

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | TOTAL INSTALLED CAPACITY | FIRM CAPACITY IMPORT | FIRM CAPACITY EXPORT | QF | TOTAL CAPACITY AVAILABLE | SYSTEM FIRM WINTER PEAK DEMAND | RESERVE MARGIN BEFORE MAINTENANCE | | SCHEDULED MAINTENANCE | RESERVE MARGIN AFTER MAINTENANCE | |
| YEAR | MW | MW | MW | MW | MW | MW | MW | % OF PEAK | MW | MW | % OF PEAK |
| 1999/00 | 8,265 | 469 | 0 | 831 | 9,565 | 8,221 | 1,344 | 16% | 0 | 1,344 | 16% |
| 2000/01 | 8,603 | 469 | 0 | 831 | 9,903 | 8,459 | 1,444 | 17% | 0 | 1,444 | 17% |
| 2001/02 | 8,473 | 469 | 0 | 831 | 9,773 | 8,271 | 1,502 | 18% | 0 | 1,502 | 18% |
| 2002/03 | 8,473 | 469 | 0 | 831 | 9,773 | 7,913 | 1,860 | 24% | 0 | 1,860 | 24% |
| 2003/04 | 8,307 | 469 | 0 | 831 | 9,607 | 8,020 | 1,587 | 20% | 0 | 1,587 | 20% |
| 2004/05 | 8,774 | 479 | 0 | 831 | 10,084 | 8,232 | 1,852 | 22% | 0 | 1,852 | 22% |
| 2005/06 | 8,774 | 479 | 0 | 831 | 10,084 | 8,455 | 1,629 | 19% | 0 | 1,629 | 19% |
| 2006/07 | 9,341 | 479 | 0 | 831 | 10,651 | 8,677 | 1,974 | 23% | 0 | 1,974 | 23% |
| 2007/08 | 9,341 | 479 | 0 | 831 | 10,651 | 8,900 | 1,751 | 20% | 0 | 1,751 | 20% |
| 2008/09 | 9,341 | 479 | 0 | 831 | 10,651 | 9,125 | 1,526 | 17% | 0 | 1,526 | 17% |

FLORIDA POWER CORPORATION

SCHEDULE 8

PLANNED AND PROSPECTIVE GENERATING FACILITY

ADDITIONS AND CHANGES

(JANUARY 1, 1999 THROUGH DECEMBER 31, 2008)

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | NET CAPABILITY | | | |
| | | | | FUEL | | FUEL TRANSPORT. | | CONST. | COMMERCIAL | EXPECTED | GEN. MAX. | | | | |
| | UNIT | | UNIT | | | | | START | IN-SERVICE | RETIREMENT | NAMEPLATE | SUMMER | WINTER | | |
| PLANT NAME | NO. | LOCATION | TYPE | PRIMARY | ALT. | PRIMARY | ALT. | MONTH/YEAR | MONTH/YEAR | MONTH/YEAR | KW | MW | MW | STATUS | NOTES |
| HINES ENERGY COMPLEX | 1 | POLK CO. | CC | NG | FO2 | PL | TK | 08/1995 | 04/1999 | | | 470 | 505 | TS | |
| CRYSTAL RIVER | 3 | CITRUS CO. | NP | UR | | TK | | | 05/1999 | | | 20 | 16 | CA | 2 |
| ANCLOTE | 1 | PASCO CO. | ST | F06 | NG | PL | PL | | 05/1999 | | 556,200 | 503 | 517 | FC | 1 |
| CRYSTAL RIVER | 5 | CITRUS CO. | ST | BIT | | WA,RR | | | 05/1999 | | | 17 | 17 | CA | 2 |
| DEBARY | P8 | VOLUSIA CO. | GT | NG | FO2 | PL | TK,RR | | 06/1999 | | 115,000 | 83 | 99 | FC | 1 |
| CRYSTAL RIVER | 4 | CITRUS CO. | ST | BIT | | WA,RR | | | 04/2000 | | | 17 | 17 | CA | 2 |
| CRYSTAL RIVER | 2 | CITRUS CO. | ST | BIT | | WA,RR | | | 04/2000 | | | 24 | 24 | CA | 2 |
| INTERCESSION CITY | P12-14 | OSCEOLA CO. | GT | NG | FO2 | PL | PL,TK | 03/1999 | 12/2000 | | | 249 | 297 | U | |
| SUWANNEE RIVER | P2 | SUWANNEE CO. | GT | FO2 | NG | TK | PL | | 05/2001 | | 61,200 | 54 | 67 | FC | 1 |
| CRYSTAL RIVER | 1 | CITRUS CO. | ST | BIT | | WA,RR | | | 12/2001 | | | 17 | 17 | CA | 2 |
| SUWANNEE RIVER | 1-3 | SUWANNEE CO. | ST | F06 | NG | TK | PL | | | 12/2001 | 147,000 | (145) | (147) | RE | 3 |
| HIGGINS | P1-4 | PINELLAS CO. | GT | FO2 | NG | TK | PL | | | 12/2003 | 153,430 | (128) | (148) | RE | 3 |
| RIO PINAR | P1 | ORANGE CO. | GT | FO2 | | TK | | | | 12/2003 | 19,290 | (15) | (18) | RE | 3 |
| HINES ENERGY COMPLEX | 2 | POLK CO. | CC | NG | FO2 | PL | TK | 08/2001 | 11/2004 | | | 495 | 567 | P | |
| AVON PARK | P1 | HIGHLANDS CO. | GT | FO2 | NG | TK | PL | | | 12/2004 | 33,790 | (29) | (32) | RE | 3 |
| AVON PARK | P2 | HIGHLANDS CO. | GT | FO2 | | TK | | | | 12/2004 | 33,790 | (29) | (32) | RE | 3 |
| TURNER | P1-2 | VOLUSIA CO. | GT | FO2 | | TK,WA | | | | 12/2004 | 38,580 | (30) | (36) | RE | 3 |
| HINES ENERGY COMPLEX | 3 | POLK CO. | CC | NG | FO2 | PL | TK | 08/2003 | 11/2006 | | | 495 | 567 | P | |

NOTES :

1 / FUEL CONVERSION TO NATURAL GAS.

2 / CAPABILITY INCREASE.

3 / RETIREMENT CAPACITIES ARE IN PARENTHESES. CONSIDERATION FOR POTENTIAL LIFE EXTENSIONS OF THESE FACILITIES WILL BE INCLUDED IN FUTURE STUDIES.

**FLORIDA POWER CORPORATION**

SCHEDULE 9

STATUS REPORT AND SPECIFICATIONS OF PROPOSED GENERATING FACILITIES

| | | |
|---|---|---|
| (1) | PLANT NAME AND UNIT NUMBER: | HINES ENERGY COMPLEX UNIT #1 |
| (2) | CAPACITY | |
| | a. SUMMER: | 470 MW |
| | b. WINTER: | 505 MW |
| (3) | TECHNOLOGY TYPE: | COMBINED CYCLE |
| (4) | ANTICIPATED CONSTRUCTION TIMING | |
| | a. FIELD CONSTRUCTION START-DATE: | 8/1995 |
| | b. COMMERCIAL IN-SERVICE DATE: | 4/1999 (EXPECTED) |
| (5) | FUEL | |
| | a. PRIMARY FUEL: | NATURAL GAS |
| | b. ALTERNATE FUEL: | DISTILLATE OIL |
| (6) | AIR POLLUTION CONTROL STRATEGY: | DRY LOW NOx COMBUSTION |
| (7) | COOLING METHOD: | COOLING PONDS |
| (8) | TOTAL SITE AREA: | 8,200 ACRES |
| (9) | CONSTRUCTION STATUS: | CONSTRUCTION COMPLETE |
| (10) | CERTIFICATION STATUS: | FILED 8/1992, RECEIVED 2/1994 (DEP/EPA) |
| (11) | STATUS WITH FEDERAL AGENCIES: | AIR PERMIT APPROVAL OBTAINED 2/1994 (DEP) |
| (12) | PROJECTED UNIT PERFORMANCE DATA | |
| | PLANNED OUTAGE FACTOR (POF): | 4.50 % |
| | FORCED OUTAGE FACTOR (FOF): | 3.70 % |
| | EQUIVALENT AVAILABILITY FACTOR (EAF): | 91.00 % |
| | ASSUMED CAPACITY FACTOR (%): | 70.00 % |
| | AVERAGE NET OPERATING HEAT RATE (ANOHR): | 6,962 BTU/KWH |

**FLORIDA POWER CORPORATION**

SCHEDULE 9

STATUS REPORT AND SPECIFICATIONS OF PROPOSED GENERATING FACILITIES

| | | |
|---|---|---|
| (1) | PLANT NAME AND UNIT NUMBER: | INTERCESSION CITY P12 - 14 |
| (2) | CAPACITY | |
| | a. SUMMER: | 249 MW |
| | b. WINTER: | 297 MW |
| (3) | TECHNOLOGY TYPE: | COMBUSTION TURBINE |
| (4) | ANTICIPATED CONSTRUCTION TIMING | |
| | a. FIELD CONSTRUCTION START-DATE: | 3/1999 |
| | b. COMMERCIAL IN-SERVICE DATE: | 12/2000 (EXPECTED) |
| (5) | FUEL | |
| | a. PRIMARY FUEL: | NATURAL GAS |
| | b. ALTERNATE FUEL: | DISTILLATE OIL |
| (6) | AIR POLLUTION CONTROL STRATEGY: | WATER INJECTION |
| (7) | COOLING METHOD: | AIR |
| (8) | TOTAL SITE AREA: | 165 ACRES |
| (9) | CONSTRUCTION STATUS: | UNDER CONSTRUCTION |
| (10) | CERTIFICATION STATUS: | SITE PERMITTED |
| (11) | STATUS WITH FEDERAL AGENCIES: | SITE PERMITTED |
| (12) | PROJECTED UNIT PERFORMANCE DATA | |
| | PLANNED OUTAGE FACTOR (POF): | 3.00 % |
| | FORCED OUTAGE FACTOR (FOF): | 3.00 % |
| | EQUIVALENT AVAILABILITY FACTOR (EAF): | 91.00 % |
| | ASSUMED CAPACITY FACTOR (%): | 15.00 % |
| | AVERAGE NET OPERATING HEAT RATE (ANOHR): | 11,814 BTU/KWH |

**FLORIDA POWER CORPORATION**

SCHEDULE 9
STATUS REPORT AND SPECIFICATIONS OF PROPOSED GENERATING FACILITIES

| | | |
|---|---|---|
| (1) | PLANT NAME AND UNIT NUMBER: | HINES ENERGY COMPLEX UNIT #2 |
| (2) | CAPACITY | |
| | a. SUMMER: | 495 MW |
| | b. WINTER: | 567 MW |
| (3) | TECHNOLOGY TYPE: | COMBINED CYCLE |
| (4) | ANTICIPATED CONSTRUCTION TIMING | |
| | a. FIELD CONSTRUCTION START-DATE: | 8/2001 |
| | b. COMMERCIAL IN-SERVICE DATE: | 11/2004 (EXPECTED) |
| (5) | FUEL | |
| | a. PRIMARY FUEL: | NATURAL GAS |
| | b. ALTERNATE FUEL: | DISTILLATE OIL |
| (6) | AIR POLLUTION CONTROL STRATEGY: | DRY LOW NOx COMBUSTION |
| (7) | COOLING METHOD: | COOLING PONDS |
| (8) | TOTAL SITE AREA: | 8,200 ACRES |
| (9) | CONSTRUCTION STATUS: | PLANNED |
| (10) | CERTIFICATION STATUS: | SITE PERMITTED |
| (11) | STATUS WITH FEDERAL AGENCIES: | SITE PERMITTED |
| (12) | PROJECTED UNIT PERFORMANCE DATA | |
| | PLANNED OUTAGE FACTOR (POF): | 4.50 % |
| | FORCED OUTAGE FACTOR (FOF): | 3.70 % |
| | EQUIVALENT AVAILABILITY FACTOR (EAF): | 91.00 % |
| | ASSUMED CAPACITY FACTOR (%): | 70.00 % |
| | AVERAGE NET OPERATING HEAT RATE (ANOHR): | 6,800 BTU/KWH |

**FLORIDA POWER CORPORATION**

SCHEDULE 9
STATUS REPORT AND SPECIFICATIONS OF PROPOSED GENERATING FACILITIES

| | | |
|---|---|---|
| (1) | PLANT NAME AND UNIT NUMBER: | HINES ENERGY COMPLEX UNIT #3 |
| (2) | CAPACITY | |
| | a. SUMMER: | 495 MW |
| | b. WINTER: | 567 MW |
| (3) | TECHNOLOGY TYPE: | COMBINED CYCLE |
| (4) | ANTICIPATED CONSTRUCTION TIMING | |
| | a. FIELD CONSTRUCTION START-DATE: | 8/2003 |
| | b. COMMERCIAL IN-SERVICE DATE: | 11/2006 (EXPECTED) |
| (5) | FUEL | |
| | a. PRIMARY FUEL: | NATURAL GAS |
| | b. ALTERNATE FUEL: | DISTILLATE OIL |
| (6) | AIR POLLUTION CONTROL STRATEGY: | DRY LOW NOx COMBUSTION |
| (7) | COOLING METHOD: | COOLING PONDS |
| (8) | TOTAL SITE AREA: | 8,200 ACRES |
| (9) | CONSTRUCTION STATUS: | PLANNED |
| (10) | CERTIFICATION STATUS: | SITE PERMITTED |
| (11) | STATUS WITH FEDERAL AGENCIES: | SITE PERMITTED |
| (12) | PROJECTED UNIT PERFORMANCE DATA | |
| | PLANNED OUTAGE FACTOR (POF): | 4.50 % |
| | FORCED OUTAGE FACTOR (FOF): | 3.70 % |
| | EQUIVALENT AVAILABILITY FACTOR (EAF): | 91.00 % |
| | ASSUMED CAPACITY FACTOR (%): | 70.00 % |
| | AVERAGE NET OPERATING HEAT RATE (ANOHR): | 6,800 BTU/KWH |

**FLORIDA POWER CORPORATION**

SCHEDULE 10
STATUS REPORT AND SPECIFICATIONS OF PROPOSED DIRECTLY ASSOCIATED TRANSMISSION LINES

**HINES ENERGY COMPLEX SITE**

| | | |
|---|---|---|
| (1) | POINT OF ORIGIN AND TERMINATION: | BARCOLA SUBSTATION - HINES ENERGY COMPLEX |
| (2) | NUMBER OF LINES: | 1 (SECOND CIRCUIT OF DOUBLE CIRCUIT CONSTRUCTION) |
| (3) | RIGHT-OF-WAY: | EXISTING TRANSMISSION LINE AND HINES ENERGY COMPLEX SITE |
| (4) | LINE LENGTH: | 3 MILES |
| (5) | VOLTAGE: | 230 KV |
| (6) | ANTICIPATED CONSTRUCTION TIMING: | MID 2004 IN-SERVICE, START CONSTRUCTION EARLY 2003 |
| (7) | ANTICIPATED CAPITAL INVESTMENT: | $ 1,800,000 |
| (8) | SUBSTATIONS: | N/A |
| (9) | PARTICIPATION WITH OTHER UTILITIES: | N/A |

**FLORIDA POWER CORPORATION**

SCHEDULE 10
STATUS REPORT AND SPECIFICATIONS OF PROPOSED DIRECTLY ASSOCIATED TRANSMISSION LINES

**HINES ENERGY COMPLEX SITE**

| | | |
|---|---|---|
| (1) | POINT OF ORIGIN AND TERMINATION: | WEST LAKE WALES SUBSTATION - HINES ENERGY COMPLEX |
| (2) | NUMBER OF LINES: | 1 (FIRST CIRCUIT OF DOUBLE CIRCUIT CONSTRUCTION) |
| (3) | RIGHT-OF-WAY: | EXISTING TRANSMISSION LINE AND HINES ENERGY COMPLEX SITE |
| (4) | LINE LENGTH: | 21 MILES |
| (5) | VOLTAGE: | 230 KV |
| (6) | ANTICIPATED CONSTRUCTION TIMING: | MID 2006 IN-SERVICE, START CONSTRUCTION EARLY 2005 |
| (7) | ANTICIPATED CAPITAL INVESTMENT: | $ 16,500,000 |
| (8) | SUBSTATIONS: | N/A |
| (9) | PARTICIPATION WITH OTHER UTILITIES: | N/A |

# OTHER PLANNING ASSUMPTIONS AND INFORMATION

## INTEGRATED RESOURCE PLANNING OVERVIEW

FPC employs an Integrated Resource Planning (IRP) process to determine the most cost-effective mix of generation and Demand-Side Management programs that will reliably satisfy our customer's future energy needs as required by the Energy Policy Act of 1992 (EPACT).

FPC's IRP process incorporates state-of-the-art computer hardware and models to evaluate future generation alternatives and cost-effective conservation and dispatchable demand-side management programs on a consistent and integrated basis. Integrated resource planning involves a wide diversity of departments and company resources. A full range of generation and demand side alternatives are considered for incorporation into the company's resource mix. The IRP process is carried out in full or in part every few years. This allows the company the flexibility to re-evaluate resources that are in the current plan prior to their construction or implementation, and to evaluate the addition of new resources not previously examined.

An overview of FPC's IRP process is shown in Figure 1. The process begins with the development of various forecasts, including demand and energy, fuel prices, and economic assumptions. Future supply- and demand-side resource alternatives are identified and extensive cost and operating data is collected to enable these to be modeled in detail. These alternatives are optimized together to determine the most cost-effective plan for FPC to pursue over the next ten years that meets the company's reliability criteria. This is called the Integrated Optimal Plan. This plan is then evaluated within the company's financial model to determine its effect on the overall financial health of the corporation. The 1999 Ten-Year Site Plan utilized an IRP process that incorporated the proposed DSM Goals submitted by FPC in the 1999 Conservation Goals Docket. This process is discussed further in the section titled The IRP Process.

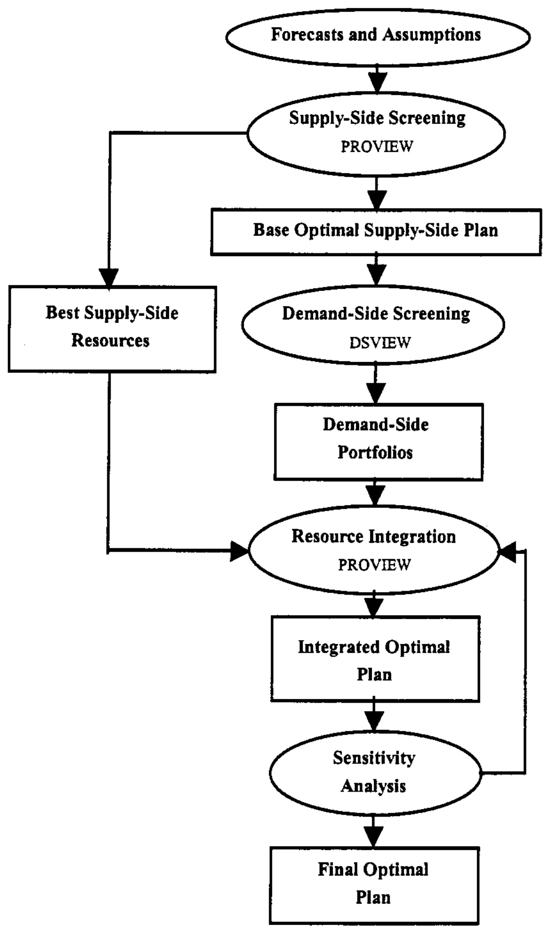



**Figure 1**

## THE IRP PROCESS

### Forecasts and Assumptions:

The evaluation of possible supply-side and demand-side alternatives, and development of the optimal plan, is the longest and most demanding part of the IRP process. These steps together comprise the integration process and begin with the development of forecasts and collection of input data. Base forecasts that reflect FPC's view of the most likely future scenarios are developed, along with high and low forecasts that reflect alternative future scenarios. Computer models used in the process are brought up-to-date to reflect this data, along with the latest operating parameters and maintenance schedules for FPC's existing generating units. This establishes a consistent starting point for all further analysis.

FPC plans its resources to meet dual reliability criteria of 15 percent reserve margin over forecasted firm peak demand and 0.1 days per year Loss of Load Probability (LOLP). The reserve margin criterion is deterministic and provides a measure of FPC's ability to meet its forecasted seasonal peak load. The LOLP is a probabilistic criterion, which is a measure of FPC's ability to meet its load throughout the year taking into consideration unit failures, unit maintenance, and assistance from other utilities. Short-term fluctuations in reliability criteria, which typically do not require long-term generation resources, will be addressed in the years prior to the need.

**Supply-Side Screening:**

Potential supply-side resources are screened to determine those that are the most cost-effective. Data used for the screening analysis is compiled from various industry sources and FPC's experiences. Resource options are "pre-screened" to set aside those that do not warrant a detailed cost-effectiveness analysis. Typical screening criteria are costs, fuel source, technology maturity, environmental parameters, and overall resource feasibility. Generating units' performance was typically modeled based on three-year averages for availability and periodic performance testing for heat rates.

Economic evaluation of generation alternatives is performed using the PROVIEW optimization program. The optimization program evaluates revenue requirements for specific resource plans generated from combinations of future resource additions that meet system reliability criteria and other system constraints. All resource plans are then ranked by system revenue requirements. Multiple optimization runs may be required to screen a large selection of future resource additions. The screening process proceeds until all of the alternatives that are left can be evaluated in a single optimization run. The final optimization run then produces an optimal supply-side resource plan, which is called the "Base Optimal Supply-Side Plan."

**Demand-Side Screening:**

Like supply-side resources, data about large numbers of potential demand-side resources is collected. These resources are "pre-screened" to eliminate those alternatives that are still in research and development, addressed by other regulation (building code), or not applicable to

FPC's customers. The demand-side screening model, DSVIEW, is updated with cost data and load impact parameters for each potential DSM measure to be evaluated.

The base optimal supply-side plan is used as the basis for screening future demand-side resources. The future supply-side alternatives that are selected for the base optimal supply-side plan are the stream of avoidable units that future demand-side programs are screened against. Each future demand-side alternative is individually added to the base optimal supply-side plan and the amount of generation in the plan is reduced to equalize the reliability between the cases. The system is then re-dispatched over the ten year planning period. Comparison of this case, with the demand-side program included, to the base optimal supply-side plan is used to determine the benefit or detriment that the addition of this demand-side resource provides to the overall system. DSVIEW calculates the benefits and costs for each demand-side measure evaluated and reports the appropriate ratios for the Rate Impact Measure (RIM), the Total Resource Cost Test (TRC), and the Participant Test.

Demand-side programs that pass the RIM test are then bundled together into portfolios. Portfolios of DSM programs are considered together, rather than individually, in the integration process that follows. This is necessary to reduce the number of possible future scenarios and make the optimization solvable with the computing resources available.

## RESOURCE INTEGRATION AND FINAL OPTIMAL PLAN

The cost-effective generation alternatives as determined by the supply-side screening and the demand-side portfolios developed in the demand-side screening process are optimized together to formulate an integrated optimal plan. The optimization program considers all possible future mixes of supply-side and demand-side alternatives that meet the company's reliability criteria in each year over a ten-year period. The economic operation of each future scenario is additionally evaluated over forty years. The program will again consider many tens or hundreds of thousands of combinations, and report those that provide the lowest rates to FPC's ratepayers.

The plan that provides the lowest rates is further tested using sensitivity analysis. The economics of the plan are evaluated under high and low forecast scenarios to ensure that the plan does not unduly burden the company or the ratepayers if the future unfolds in a way very different from the base forecast. If the plan is judged robust under sensitivity analysis, it becomes the final optimal plan.

The final optimal plan passes from the optimization process to the company financial model. It is evaluated to ensure that the company can finance it adequately and that it will not have a detrimental impact on the company's stock or bond rating. A plan that has a detrimental impact on the company's financial health will be returned to the integration process. At this point, it may be necessary to re-assess part of the screening process, or it may only be necessary to repeat the integration and sensitivity analyses with appropriate constraints included.

## FUEL FORECAST

The base case fuel price forecast was developed from the expected or most likely course of events. General market conditions for all fuels are expected to be relatively stable when viewed from an average annual cost basis. Coal prices are also expected to be relatively stable month to month; however, oil and natural gas prices are expected to be highly volatile on a day to day and month to month basis.

The base cost for coal is based on the existing contractual structure between Electric Fuels Corporation (EFC) and FPC and both contract and spot market coal and transportation arrangements between EFC and its various suppliers. Oil and natural gas prices are estimated based on current and expected contracts and spot purchase arrangements. Oil and natural gas commodity prices are driven primarily by open market forces of supply and demand. Natural gas firm transportation cost is determined primarily by Tariff and rates tend to change less frequently than commodity prices.

The high case fuel forecast is based on the premise that fuel prices are high in a relatively high inflation economic environment on a worldwide basis. The forecast is based on an approximate probability of 25 percent (vs. 50 percent for the base case). Coal prices in the high case were developed based on the effect the coal market and inflation have on contract supply, spot supply, quality differences and the various transportation cost drivers. FPC developed the high case oil and natural gas forecast based on the same general market environment and inflation levels as those used for coal. Since oil and natural gas supply are primarily purchased at market prices, consideration for current contract escalation was not required. Any expected increase in transportation cost is also included in the overall projected price increases.

The low case fuel forecast is based on the premise that fuel prices are low in a low inflation economic environment on a worldwide basis. The forecast is based on an approximate probability of 25 percent (vs. 50 percent for the base case). Coal prices in the low case were developed based on the effect the coal market and inflation have on contract supply, spot supply, quality differences and the various transportation cost drivers. FPC developed the low case oil and natural gas forecast based on the same general market environment and inflation levels as those used for coal. Since oil and natural gas supply are primarily purchased at market prices, no consideration is given for current contract escalation. Any expected change in transportation cost is also included in the overall projected price variations.

A constant oil and gas to coal differential fuel sensitivity forecast was also developed based on the premise that the current differential price of oil and gas to coal remains constant over time.

## FINANCIAL FORECAST

### Financial Assumptions

The Base Financial Case was a combination of FPC's current financial assumptions for incremental costs and standard accounting practices, and DRI/McGraw-Hill's *Long-Range Focus*. The income tax, depreciation rates and capital structure were based on FPC's corporate financial assumptions. The inflation rate and debt interest rates were based on DRI/McGraw Hill's *Long-Range Focus, Winter 1997-1998 Trend*. In general, the economy has a balanced growth path and a stable inflation rate.

In the Optimistic Financial Case there is high growth and low stable inflation rate. DRI/McGraw Hill's *Long-Range Focus* was used for forecasted interest rates and inflation rates. Due to low inflation, interest rates remain low, which enhances business development. FPC's composite cost of capital was adjusted to reflect the low inflation rates.

In the Pessimistic Financial Case there is low growth and high inflation. DRI/McGraw Hill's *Long-Range Focus* was used for forecasted interest rates and inflation rates. Due to high inflation, interest rates remain high, which depresses consumer expenditures. FPC's composite cost of capital was adjusted to reflect the high inflation rates.

## BASE EXPANSION PLAN

The base expansion plan consists mainly of three generation expansion phases. The first expansion phase is the commercial operation of the Hines Energy Complex (HEC) combined cycle Unit #1 by April 1999. The second phase is the construction of three combustion turbine units at the Intercession City (IC) Site by December 2000. The third phase is the projected expansion of the Hines Energy Complex Unit #2 & #3 by 2004 and 2006, respectively.

The HEC #2 and #3 units are state-of-the-art combined cycle units with similar characteristics as HEC #1. Accepting associated risks, future advancements in combined cycle technologies will provide for a higher efficiency combined cycle plan that challenges today's state-of-the-art combined cycle expansion plan. Given FPC's base expansion resource of combined cycle generation, the state-of-the-art and future advanced combined cycle technologies would be pursued simultaneously to ensure the lowest possible expansion costs.

FPC plans to provide a market-based analysis to insure that future expansion resources are procured in a just and reasonable manner. The procurement process for future resources would consider self-build alternatives as well as market based alternatives. Self-build alternatives would consider competitively bidding FPC's equipment, engineering and construction costs. Market alternatives would consider various types of market contracts as well as competitively bidding these resources. Each expansion resource must adapt well to FPC's other portfolio resources and bring a value added service beyond just price. FPC fully intends to offer valued products at reasonable costs to insure a stable, adequate generation supply for its native load.

## BASE EXPANSION PLAN SENSITIVITIES

Sensitivities to Load, Fuel and Financial Forecasts were analyzed against the base plan. The base expansion plan of constructing combined cycles on gas was determined to be robust with respect to changes in the load, fuel and financial forecasts. The low load forecast sensitivity required one less combined cycle unit. The high-load forecast, which included continuing to serve wholesale customers with choice as well as increased retail demand, indicated that additional combined cycles and combustion turbine units would be required. The high load expansion plan is consistent with the base expansion plan technologies, but in greater magnitude. Combustion turbines have shorter lead times than combined cycles and continue to provide flexibility in meeting demand changes. FPC's base expansion plan could be modified with combustion turbines to meet uncertainty in the demand forecast.

The high and low fuel forecast sensitivities indicated that the base expansion plan was robust to sensitivities in those forecasts and would require no changes to the base expansion plan. The low fuel forecast indicated no changes to the base expansion plan. The high fuel forecast indicated an increase in savings for the future advanced technology combined cycle versus the state-of-the-art combined cycle presently being planned. In addition, a sensitivity to holding the current differential price of oil and gas to coal constant over time indicated lower benefits for high efficiency combined cycle units and a greater value for simple cycle combustion turbines. However, these fuel sensitivities were not significant enough to depart from the base expansion plan of utilizing state-of-the-art combined cycle technology.

The high and low financial forecast sensitivities indicated that the base plan was robust to sensitivities in those forecasts and would require no change to the base expansion plan. In general, all the high sensitivity cases indicated an increase in total revenue requirements while the low sensitivities indicated lower total revenue requirements.

## TRANSMISSION PLANNING

Florida Power Corporation's Transmission Planning Criteria complies with the Florida Reliability Coordinating Council's (FRCC) "Principles and Guides for Planning Reliable Bulk Electric Systems." This criteria is currently filed with FERC as a part of the FERC 715 Filing made by the FRCC. This information is publicly available, including FRCC load flow databank models.

Presently, FPC uses the following reference documents to calculate Available Transfer Capability (ATC) for required transmission path postings on the Florida OASIS (Open Access Same Time Information System):

- FRCC: ATC Calculation and Coordination Procedures, November 4, 1998, or as amended
- NERC: Transmission Transfer Capability, May 1995
- NERC: Available Transfer Capability - Definitions and Determination, May 1996

Currently, FPC proposes no bulk transmission additions that must be certified under the Florida Transmission Line Siting Act (TLSA). FPC's proposed future bulk transmission line additions are shown below:

| FLORIDA POWER CORPORATION<br>LIST OF PROPOSED BULK TRANSMISSION LINE ADDITIONS<br>1999-2008 | | | | | |
|---|---|---|---|---|---|
| **LINE OWNERSHIP** | **TERMINALS** | **TERMINALS** | **LINE LENGTH CKT. MILES** | **COMMERCIAL IN-SERVICE DATE (MO/YR)** | **NOMINAL OPERATING VOLTAGE (kV)** |
| FPC | LAKE BRYAN | INTERCESSION CITY | 10 | 10/2000 | 230 |
| | | | | | |
| FPC | TAYLOR CREEK | HOLOPAW | 1 | 11/2002 | 230 |
| | | | | | |
| FPC | LAKE BRYAN | WINDERMERE | 10 | 12/2003 | 230 |
| | | | | | |
| FPC | BARCOLA #2 | HINES ENERGY COMPLEX | 3 | 5/2004 | 230 |
| | | | | | |
| FPC | CENTRAL FLORIDA | SILVER SPRINGS | 3 | 5/2005 | 230 |
| | | | | | |
| FPC | WEST LAKE WALES | HINES ENERGY COMPLEX | 21 | 5/2006 | 230 |

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# *CHAPTER 4*

## *ENVIRONMENTAL and LAND USE INFORMATION*

# CHAPTER 4 ENVIRONMENTAL and LAND USE INFORMATION

## PREFERRED SITES

FPC's base expansion plan proposes new generation at the Hines Energy Complex (HEC) site in Polk County and the Intercession City (IC) site in Osceola County. The HEC site has been certified through the rules of the Power Plant Siting Act. The first combined cycle unit is scheduled for commercial operation by April 1999. The IC site is an existing site with three additional combustion turbine units planned for December 2000. The preferred sites of HEC and IC meet all of FPC's siting requirements for capacity throughout the planning horizon. FPC's existing sites, as identified in Table 3.1 of Chapter 3, have been permitted and include the capability to further enhance their generation and still operate within their individual site permit limits. All appropriate permitting requirements have been obtained for FPC's preferred sites. Therefore, detail environmental or land use data is not included. The base expansion plan does not include any potential sites for new generating facilities.

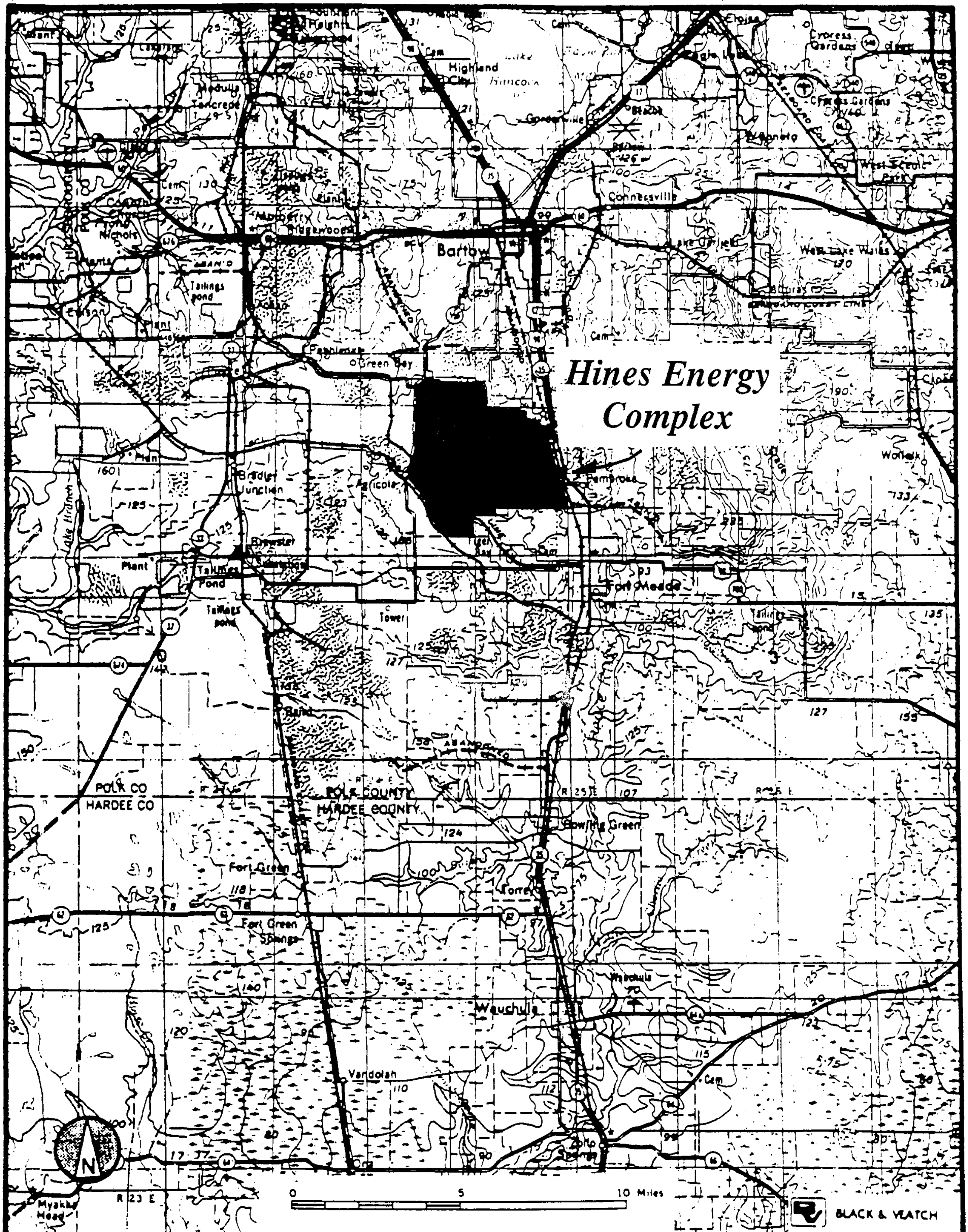
## HINES ENERGY COMPLEX IN POLK COUNTY

In 1990, FPC completed a state-wide search for a new 3,000 MW coal capable power plant site. As a result of this work, a large tract of mined out phosphate land in south-central Polk County was selected as the primary alternative. This 8,200 acre site is located near the cities of Fort Meade and Homeland, south of S. R. 640 and west of U.S. 17/98 (reference the Polk County Site map). It is an area that has been extensively mined and remains predominantly unreclaimed.

The governor and cabinet approved site certification for ultimate site development and construction of the first 470 MW increment on January 25, 1994, in accordance with the rules of the Power Plant Siting Act. Due to the thorough screening during the selection process, and the disturbed nature of the site, there were no major environmental limitations. As would be the situation at any location in the state, air emissions and water consumption were significant issues during the licensing process.

As future generation units are added, the remaining network of on-site clay settling ponds will be converted to cooling ponds and combustion waste storage areas to support power plant operations. Given the disturbed nature of the property, considerable development has been required in order to make it usable for electric utility application. An industrial rail network and an adequate road system service the site.

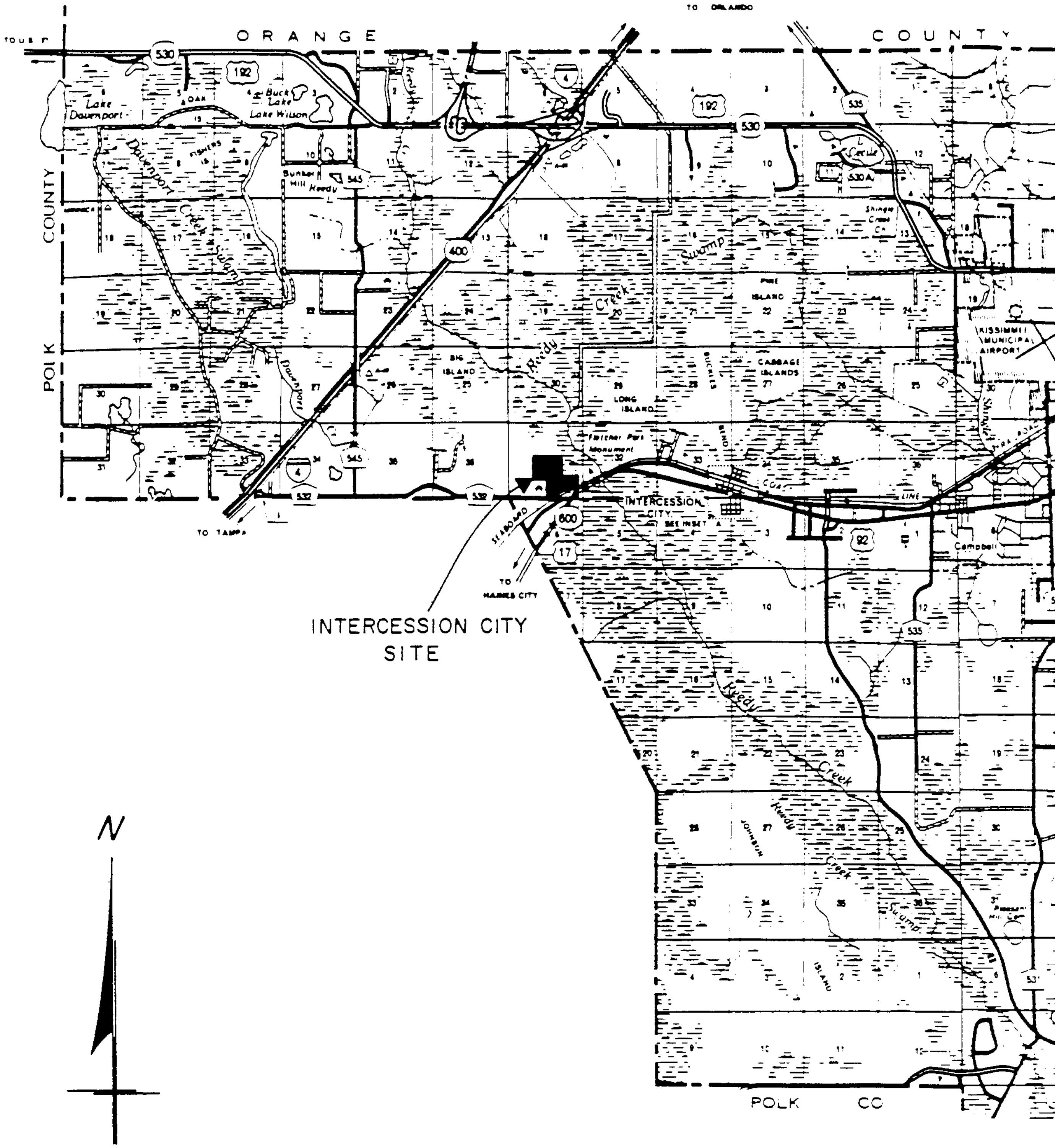
Construction of site improvements began in October 1994. The first combined cycle unit, with a summer capacity of 470 MW, is scheduled for commercial operation by April 1999. The transmission improvements associated with the first unit at this site were the rebuilding of the existing 230/115 kV double circuit Barcola - Ft. Meade line by increasing the conductor sizes and converting the line to double circuit 230 kV operation. The new lines were located on the plant site to avoid conflicts with plant facilities, and are looped into the plant substation.




*Hines Energy Complex (Polk County)*

## INTERCESSION CITY SITE IN OSCEOLA COUNTY

Intercession City was chosen as the preferred site for installation of three additional combustion turbine peaking units by December 2000. The seasonal ratings for the Intercession City capacity addition are projected to be 249 MW summer (83 MW each) and 297 MW winter (99 MW each). The Intercession City Site consists of 165 acres in Osceola County (reference DWG IV-4), two miles west of Intercession City. The site is immediately west of Reedy Creek and the adjacent Reedy Creek Swamp. The site is adjacent to a secondary effluent pipeline from a municipal waste-water treatment plant, an oil pipeline, and a natural gas lateral serving the Kissimmee Utility Authority Cane Island facility. The Florida Department of Environmental Protection air rules currently list all of Osceola County as attainment for ambient air quality standards. The environmental impact on the site will be minimized by FPC's close coordination with regulatory agencies to ensure compliance with all applicable environmental regulations. The existing 230 kV transmission grid will accommodate these additional combustion turbine peaking units.




| PRODUCTION ENGINEERING DEPARTMENT | | |
|---|---|---|
| PARTIAL AREA MAP OSCEOLA CO. FL. | | |
| DRAWN BY G.S.K. | DATE 2-27-90 | SCALE NONE |
| CHECKED BY | DATE | DISCIPLINE |
| APPROVED BY | DATE | PLANT/UNIT |
| DATA PROCESS NO | | SHEET |
| DWG. NO. IV - 4 | | |

Florida Power

| NO | DESCRIPTION | DATE |
|---|---|---|