ORIGINAL

CITY OF TALLAHASSEE

ELECTRIC DEPARTMENT

CITY OF TALLAHASSEE, FLORIDA

2000 - 2009 TEN YEAR SITE PLAN

City Electric
TALLAHASSEE

THE ENERGY OF FLORIDA'S CAPITAL CITY

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CITY OF TALLAHASSEE
TEN YEAR SITE PLAN FOR ELECTRICAL GENERATING FACILITIES AND ASSOCIATED TRANSMISSION LINES
2000-2009
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Chapter I

Description of Existing Facilities

1.0 Introduction

The City of Tallahassee (City) owns, operates, and maintains an electric generation, transmission, and distribution system that supplies electric power in and around the corporate limits of the City. The City was incorporated in 1825 and has operated since 1919 under the same charter. The City began generating its power requirements in 1902 and the City's Electric Department presently serves approximately 93,500 customers located within a 221 square mile service territory. The Electric Department operates three generating stations with a total summer season generating capacity of approximately 430 megawatts (MW).

The City has two fossil-fueled generating stations, each of which contain both steam and gas turbine electric generating facilities. The Sam O. Purdom Generating Station, located in the town of St. Marks, Florida has been in operation since 1952; and the Arvah B. Hopkins Generating Station, located on Geddie Road west of the City, has been in commercial operation since 1970. The City has also been generating electricity at the C.H. Corn Hydroelectric Station, located on Lake Talquin west of Tallahassee, since August of 1985.

1.1 System Capability

The City maintains five points of interconnection with Florida Power Corporation (two at 69 kV, two at 115 kV, and one at 230 kV), and a 230 kV interconnection with Georgia Power Company (a subsidiary of the Southern Company).

As shown in Table 1.1 (Schedule 1), following the placement of Steam Units #5 and #6 on cold standby in October 1999 (retirement of these units planned for Spring 2000), 48 MW (net summer rating) of steam generation and 20 MW (net summer rating) of combustion turbine generation facilities are located at the City's Sam O. Purdom Generating Station. The Arvah B. Hopkins Generating Station includes approximately 314 MW (net summer rating) of steam generation and 36 MW (net summer rating) of combustion turbine generation facilities. All of the City's available steam generating units at these sites can be fired with natural gas, oil or both. The combustion turbine units can be fired on either natural gas or oil but cannot burn these fuels concurrently. The total capacity of the three units at the C.H. Corn Hydroelectric Station is 11 MW.

The total net summer installed capability of the City is 429 MW. The corresponding winter net peak installed capability is 449 MW. Tables 1.1, 1.2, and 1.3 contain the details of the individual generating units, land use and investment, and certain environmental considerations.

1.2 CRYSTAL RIVER UNIT 3 DIVESTITURE / PURCHASED POWER AGREEMENTS

The Tallahassee City Commission the approved the transfer of the City's ownership interest (11.4 MW, or 1.333%) and decommissioning trust account balance in Crystal River Unit No. 3 to Florida Power Corporation (FPC) as of September 30, 1999. This action also provided for the purchase by the City of replacement electric capacity and energy from FPC equal to the City's former Crystal River Unit No. 3 ownership interest (11.4 MW).

In addition to the Crystal River Unit No. 3 replacement power the City has firm capacity and energy purchase agreements with Southern Company (79 MW) and Entergy (23 MW).

City Of Tallahassee

Schedule 1
Existing Generating Facilities
As of December 31, 1999

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
								Alt.					
								Fuel	Commercial	Expected	Gen. Max.	Net Capability	
	Unit		Unit	Fuel		Fuel Transport		Days	In-Service	Retirement	Nameplate	Summer	Winter
Plant	No.	Location	Type	Pri	Alt	Primary	Alternate	Use	Month/Year	Month/Year	(kW)	(MW)	(MW)
Sam O. Purdom	7		ST	NG	FO6	PL	WA		6/66	3/11	44,000	48	50
												48	50
	GT-1		GT	NG	FO2	PL	TK		12/63	3/08	12,500	10	10
	GT-2		GT	NG	FO2	PL	TK		5/64	3/09	12,500	10	10
												20	20
A. B. Hopkins	1	Leon	ST	NG	FO6	PL	TK		5/71	3/16	75,000	76	80
	2	26/1N/2W	ST	NG	FO6	PL	TK		10/77	3/22	259,250	238	248
												314	328
	GT-1		GT	NG	FO2	PL	TK		2/70	3/15	16,320	12	14
	GT-2		GT	NG	FO2	PL	TK		9/72	3/17	27,000	24	26
												36	40
C. H. Corn		Leon/											
Hydro Station	1	Gadsden/	HY	WAT	WAT	WAT	WAT		9/85	UNKNOWN	4,440	4	4
	2		HY	WAT	WAT	WAT	WAT		8/85	UNKNOWN	4,440	4	4
	3		HY	WAT	WAT	WAT	WAT		1/86	UNKNOWN	3,430	3	3
												11	11
		TOTAL SYSTEM CAPACITY AS OF DECEMBER 31, 1999									458,880	429	449

City Of Tallahassee

Existing Generating Facilities
Land Use and Investment

(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Land Area		Plant Capital Investments in ($000)			
Plant Name	Total Acres	In Use Acres	Land	Site Improvements	Buildings & Equipment	Total
Sam O. Purdom	63	38	15	129	45,993	46,137
Arvah B. Hopkins	230	35	220	126	81,515	81,861
C. H. Corn (Jackson Bluff)	10,200	10,200	-	-	12,677	12,677
Electric System Totals [1]			235	255	140,185	140,675

[1] The totals shown represent the fixed assets of those categories as of September 30 , 1999.

City Of Tallahassee

Existing Generating Facilities
Environmental Considerations for Steam Generating Units

Air Pollution Control Strategy

(1) Plant Name	(2) Unit	(3) PM	(4) SO_x	(5) NO_x	(6) Cooling Type
Arvah B. Hopkins	1	None	L.S.	None	WCTM
	2	None	L.S.	O.A.	WCTM
Sam O. Purdom	7	None	L.S.	None	OTW
C. H. Corn Hydro (Jackson Bluff Hydro)		Not Applicable			

Notes: Environmental Considerations for the regulated air pollutants particulate matter, sulfur dioxide, and/or nitrogen oxides are any formal control measures implemented during the operation of the boiler in order to meet permit limits.

WCTM	Wet cooling tower, mechanical draft
OTW	Once through non-contact cooling water
L. S.	Low Sulfur (No. 6 fuel oil with no greater than 1.0 percent sulfur content [not a permit limit] and natural gas)
O.A.	Overfire Air
PM	Particulate Matter
SO_x	Sulfur Dioxide
NO_x	Nitrogen Oxides

CHAPTER II

Forecast of Energy/Demand Requirements and Fuel Utilization

2.0 INTRODUCTION

Chapter II includes the City of Tallahassee's forecasts of (i) demand and energy requirements, (ii) energy sources and (iii) fuel requirements. This chapter explains the City's 2000 Load Forecast and the Demand Side Management plan filed with the Florida Public Service Commission (PSC) on March 1, 1996. Based on the forecast, the energy sources and the fuel requirements have been projected.

2.1 SYSTEM DEMAND AND ENERGY REQUIREMENTS

Historical and forecast energy consumption and customer information are presented in Tables 2.1, 2.2 and 2.3 (Schedules 2.1, 2.2, and 2.3). Figure B1 shows the historical and forecast trends of energy sales by customer class. Figure B2 shows the percentage of energy sales by customer class for the base year of 2000 and the horizon year of 2009. Tables 2.4 through 2.12 (Schedules 3.1.1 - 3.3.3) contain historical and forecast peak demands and net energy for load for base, high, and low values. Table 2.13 (Schedule 4) compares actual and two-year forecast peak demand and energy values by month for the 1999-2001 period.

2.1.1 SYSTEM LOAD FORECAST

The peak demand and energy forecasts contained in this plan are the results of an annual update of the load forecasting study performed by the City and reviewed by the engineering consulting firm of R.W. Beck. The energy forecast is developed utilizing a methodology which the City has employed since 1980, consisting of 13 multi-variable linear regression models based on detailed examination of the system's historical growth, usage patterns and population statistics. The regression coefficients for the 2000 forecast have updated to reflect the most recent historic data. As a result, it is expected that the accuracy of the models has been improved. These models are used to predict number of customers and retail sales by customer class, and seasonal system peak demand. Several key regression formulas utilize econometric variables. The customer class models are aggregated to form a total system sales forecast. The effects of demand-side management programs and system losses are incorporated in this base forecast to produce the system net energy requirements.

Table 2.14 lists the econometric-based linear regression forecasting models that are used as predictors. Note that the City uses regression models with the capability of separately predicting commercial customer consumption by rate sub-class: general service non-demand (GS), general service demand (GSD), and general service large demand (GSLD). These, along with the residential class, represent the major classes of the City's electric customers. The key explanatory variables used in each of the models are indicated by an "X" on the table. Table 2.15 documents the City's internal and external sources for historical and forecast economic, weather and demographic data. These tables explain the details of the models used to generate the system sales forecast. In addition to those explanatory variables listed, a component is also included in the models which reflects the acquisition of certain Talquin Electric Cooperative (TEC) customers over the study period consistent with the territorial agreement negotiated between the City and TEC and approved by the PSC.

Since 1992, the City has used two econometric models to separately predict summer and winter peak demand. Table 2.14 also shows the key explanatory variables used in the demand models. One notable change to the base assumptions associated with the summer peak demand forecast is that of the normal summer high temperature. Based on the five-year average of the actual high temperature at the time of summer peak demand the decision was made to increase the assumed normal high temperature for the base case forecast from 99^{o} to 100^{o} Fahrenheit. The City expects that this change and the aforementioned model improvements will result in a forecast that is more consistent with the historical trend of growth in seasonal peak demand and energy consumption.

2.1.2 Load Forecast Sensitivities

Uncertainty associated with the forecast input variables and the final forecast are addressed by adjusting selected input variables in the load forecast models, to establish "high load growth" and "low load growth" sensitivity cases. For the sensitivities to the base 2000 load forecast the key explanatory variables that were changed were Leon County population, Florida population, heating degree days and cooling degree days for the energy forecast. For the peak demand forecasts, the Leon County population and maximum & minimum temperature on the peak days for the summer and winter, respectively, were changed.

Sensitivities on the peak demand forecasts are useful in planning for future power supply resource needs. The graph shown in Figure B3 compares summer peak demand (multiplied by 117% for reserve margin requirements) for the three cases against the City's existing power supply resources. This graph allows for the review of the effect of load growth variations on the timing of new resource additions. The highest probability weighting, of course, is placed on the base case assumptions, and the low and high cases are given a smaller likelihood of occurrence.

2.1.3 Energy Efficiency and Demand Side Management Programs

The City has a goal to improve the efficiency of customers' end-use of energy resources when such improvements provide a measurable economic and/or environmental benefit to the customers and the City utilities. On March 1, 1996 the City filed its Demand Side Management (DSM) Plan with the PSC. This plan indicated the demand and energy reductions due to conservation efforts that are expected over the period 1997-2006. The individual program measures that were selected for inclusion in the plan were identified as cost effective in Integrated Resource Planning (IRP) studies conducted by the City.

The following menu of programs is included in the DSM plan, which was implemented in fiscal year 1997:

Residential Programs	Commercial Programs
Secured Loans	Custom Loans
Homebuilder Rebates	Secured Loans
Unsecured Payment Plan Loans	Unsecured Payment Plan Loans
Information	Demonstrations
Low Income Ceiling Insulation Rebate	Information

Energy and demand reductions attributable to the above DSM efforts have been incorporated into the future load and energy forecasts. Table 2.16 displays the estimated energy savings associated with the menu of DSM programs. Table 2.17 shows similar data for demand savings. The figures on these tables reflect the cumulative annual impacts of the DSM plan on system energy and demand requirements.

2.1.4 FEECA

Pursuant to the Florida Energy Efficiency and Conservation Act ("FEECA"), Sections 366.80-366.85, Florida Statutes (1995), and Chapter 25-17, Florida Administrative Code, the PSC approved the City's conservation goals and program plan for the years 1996-2005. However effective July 1, 1996, the City no longer is a "utility" for the purposes of FEECA (see Section 81, Ch. 96-321, Laws of Fla. (1996)) and Chapter 25-17, and the City's conservation goals and plan are no longer subject to PSC approval. Nevertheless, the City does not plan to reduce its commitment to DSM and conservation. The City intends to continue to pursue cost-effective conservation measures that promote demand reduction and offer benefits to both the City and its customers.

2.2 ENERGY SOURCES AND FUEL REQUIREMENTS

Tables 2.18 (Schedule 5), 2.19 (Schedule 6.1), and 2.20 (Schedule 6.2) present the projections of fuel consumption, energy generated by fuel type, and the percentage of generation by fuel type, respectively, for the period 2000-2009. Figure B4 displays the percentage of energy by fuel type in 2000 and 2009. Presently, the City of Tallahassee uses renewable resources (hydroelectric power), natural gas, residual and distillate fuel oil as well as purchases from Florida Power Corporation, the Southern Company and Entergy Power, Inc., to satisfy its energy requirements.

The projections of fuel consumption and energy generated are taken from the results of PROSCREEN II simulations based on a representative resource plan as described in Chapter III.

City Of Tallahassee

Schedule 2.1
History and Forecast of Energy Consumption and Number of Customers by Customer Class

Base Load Forecast

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Rural & Residential					Commercial [4]		
Calendar Year	[1] Population	Members Per Household	[2] GWH	[3] Average No. of Customers	Average KWH Consumption Per Customer	[2] GWH	[3] Average No. of Customers	Average KWH Consumption Per Customer
1990	197,388	-	767	63,555	12,068	1,044	12,954	80,593
1991	199,875	-	759	64,997	11,677	1,060	13,208	80,254
1992	203,964	-	766	66,616	11,499	1,080	13,616	79,318
1993	208,466	-	796	68,176	11,676	1,149	13,834	83,056
1994	214,131	-	799	69,907	11,429	1,205	14,277	84,401
1995	219,066	-	870	71,534	12,162	1,268	14,780	85,792
1996	223,893	-	893	72,998	12,231	1,316	15,142	86,908
1997	229,773	-	850	74,259	11,446	1,324	15,495	85,447
1998	234,777	-	940	75,729	12,413	1,397	15,779	88,535
1999	240,178	-	926	77,357	11,970	1,419	16,183	87,685
2000	245,078	-	946	79,124	11,951	1,436	16,452	87,293
2001	249,838	-	969	81,011	11,957	1,484	16,769	88,476
2002	254,486	-	991	82,859	11,964	1,537	17,082	89,959
2003	259,049	-	1,014	84,678	11,972	1,574	17,390	90,507
2004	263,555	-	1,036	86,477	11,979	1,607	17,696	90,802
2005	268,014	-	1,058	88,259	11,987	1,639	18,000	91,036
2006	272,445	-	1,079	89,910	11,996	1,676	18,288	91,661
2007	276,851	-	1,098	91,438	12,004	1,717	18,560	92,510
2008	281,215	-	1,117	92,952	12,012	1,756	18,830	93,253
2009	285,522	-	1,135	94,446	12,021	1,789	19,098	93,654

[1] Leon County Population
[2] Raw Forecast, does not include effects of Demand-Side Management (DSM) programs.
[3] Average end-of-month customers for the calendar year.
[4] Includes Traffic Control and Security Lighting use.

<u>City Of Tallahassee</u>

Schedule 2.2
History and Forecast of Energy Consumption and Number of Customers by Customer Class

Base Load Forecast

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Industrial						
Calendar Year	[1] GWH	[2] 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
1990	-	-	-	-	11		1,822
1991	-	-	-	-	11		1,830
1992	-	-	-	-	11		1,857
1993	-	-	-	-	11		1,956
1994	-	-	-	-	12		2,016
1995	-	-	-	-	12		2,150
1996	-	-	-	-	12		2,221
1997	-	-	-	-	12		2,186
1998	-	-	-	-	12		2,349
1999	-	-	-	-	13		2,358
2000	-	-	-		13		2,395
2001	-	-	-		14		2,466
2002	-	-	-		14		2,542
2003	-	-	-		15		2,602
2004	-	-	-		15		2,658
2005	-	-	-		15		2,712
2006	-	-	-		16		2,771
2007	-	-	-		16		2,831
2008	-	-	-		17		2,889
2009					17		2,941

[1] Raw Forecast, does not include effects of Demand-Side Management (DSM) programs.
[2] Average end-of-month customers for the calendar year.

City Of Tallahassee

Schedule 2.3
History and Forecast of Energy Consumption and Number of Customers by Customer Class

Base Load Forecast

(1) Calendar Year	(2) Sales for Resale GWH	(3) [1] Utility Use & Losses GWH	(4) Net Energy for Load GWH [1]	(5) Other Customers (Average No.)	(6) [2] Total No. of Customers
1990	0	81	1,903		76,509
1991	0	122	1,952		78,205
1992	0	123	1,980		80,232
1993	0	130	2,086		82,010
1994	0	134	2,150		84,184
1995	0	142	2,292		86,314
1996	0	147	2,368		88,140
1997	0	132	2,318		89,754
1998	0	128	2,477		91,508
1999	0	139	2,497		93,540
2000	0	159	2,554		95,576
2001	0	163	2,629		97,780
2002	0	168	2,711		99,941
2003	0	172	2,775		102,068
2004	0	176	2,834		104,173
2005	0	180	2,892		106,259
2006	0	184	2,954		108,198
2007	0	188	3,018		109,998
2008	0	191	3,080		111,782
2009	0	195	3,136		113,544

[1] Raw Forecast, does not include effects of Demand-Side Management (DSM) programs.
[2] Average number of customers for the calendar year.

**History and Forecast Energy Consumption
By Customer Class**

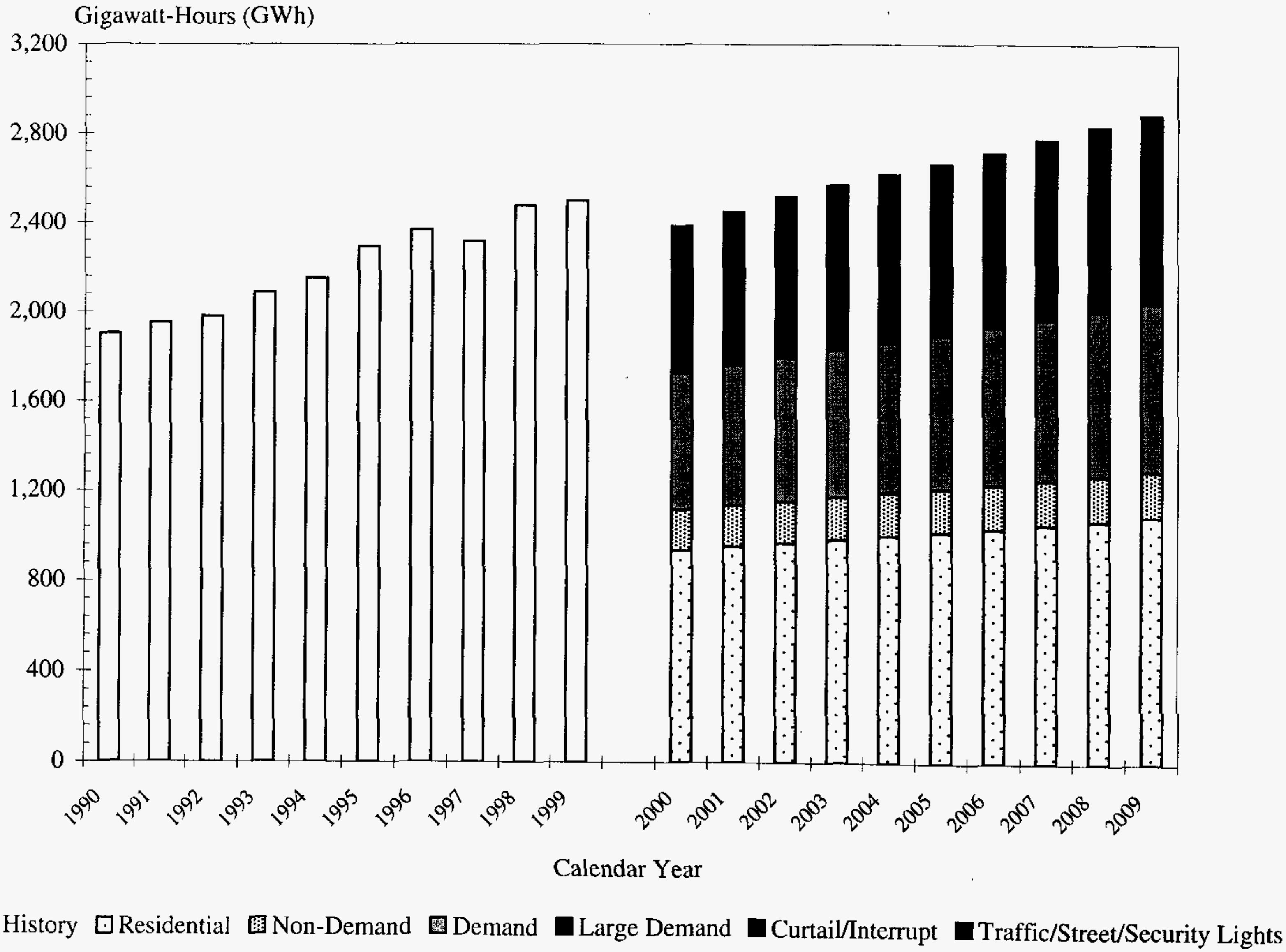
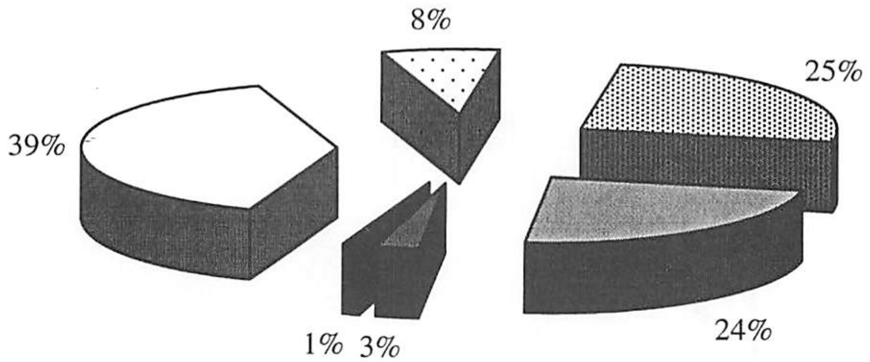


Figure B1

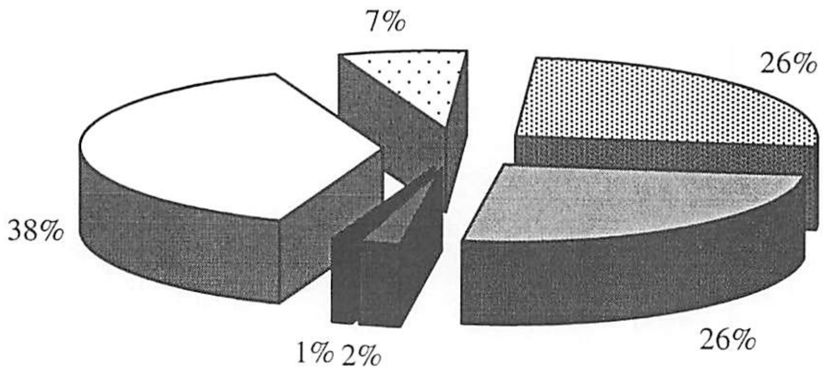
Energy Consumption By Customer Class

Calendar Year 2000



Total 2000 Sales = 2,395 GWh
Values exclude DSM impacts

Calendar Year 2009



Total 2009 Sales = 2,941 GWh
Values exclude DSM impacts

☐ Residential	☐ Non Demand	▨ Demand
▨ Large Demand	■ Curtail/Interrupt	■ Traffic/Street/Security Lights

City Of Tallahassee

Schedule 3.1.1
History and Forecast of Summer Peak Demand
Base Forecast
(MW)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Calendar Year	Total	Wholesale	Retail	Interruptible	Residential Load Management	Residential Conservation	Comm./Ind Load	Comm./Ind Conservation	[1] Net Firm Demand
1990	415		415						415
1991	412		412						412
1992	428		428						428
1993	459		459						459
1994	433		433						433
1995	497		497						497
1996	500		500						500
1997	486		486						486
1998	530		530						530
1999	526		526						526
2000	536		536			1.4		0.5	534
2001	553		553			2.8		1.1	549
2002	569		569			4.3		1.5	563
2003	582		582			5.7		2.1	574
2004	594		594			7.1		2.6	584
2005	606		606			8.5		3.2	594
2006	619		619			10.0		3.6	605
2007	632		632			10.0		3.6	618
2008	643		643			10.0		3.6	629
2009	656		656			10.0		3.6	642

[1] Values include DSM Impacts.

City Of Tallahassee

Schedule 3.1.2
History and Forecast of Summer Peak Demand
High Forecast
(MW)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Calendar Year	Total	Wholesale	Retail	Interruptible	Residential Load Management	Residential Conservation	Comm./Ind Load	Comm./Ind Conservation	[1] Net Firm Demand
1990	415		415						415
1991	412		412						412
1992	428		428						428
1993	459		459						459
1994	433		433						433
1995	497		497						497
1996	500		500						500
1997	486		486						486
1998	530		530						530
1999	526		526						526
2000	546		546			1.4		0.5	544
2001	562		562			2.8		1.1	558
2002	578		578			4.3		1.5	573
2003	591		591			5.7		2.1	584
2004	603		603			7.1		2.6	594
2005	615		615			8.5		3.2	604
2006	629		629			10.0		3.6	615
2007	641		641			10.0		3.6	627
2008	652		652			10.0		3.6	638
2009	665		665			10.0		3.6	651

[1] Values include DSM Impacts.

City Of Tallahassee

Schedule 3.1.3
History and Forecast of Summer Peak Demand
Low Forecast
(MW)

(1) Calendar Year	(2) Total	(3) Wholesale	(4) Retail	(5) Interruptible	(6) Residential Load Management	(7) Residential Conservation	(8) Comm./Ind Load	(9) Comm./Ind Conservation	(10) [1] Net Firm Demand
1990	415		415						415
1991	412		412						412
1992	428		428						428
1993	459		459						459
1994	433		433						433
1995	497		497						497
1996	500		500						500
1997	486		486						486
1998	530		530						530
1999	526		526						526
2000	526		501			1.4		0.5	499
2001	543		517			2.8		1.1	513
2002	559		533			4.3		1.5	527
2003	572		548			5.7		2.1	540
2004	584		561			7.1		2.6	551
2005	596		573			8.5		3.2	561
2006	610		583			10.0		3.6	569
2007	622		595			10.0		3.6	581
2008	633		607			10.0		3.6	593
2009	646		621			10.0		3.6	607

[1] Values include DSM Impacts.

City Of Tallahassee

Schedule 3.2.1
History and Forecast of Winter Peak Demand
Base Forecast
(MW)

(1) Year	(2) Total	(3) Wholesale	(4) Retail	(5) Interruptible	(6) Residential Load Management	(7) Residential Conservation	(8) Comm./Ind Load	(9) Comm./Ind Conservation	(10) [1] Net Firm Demand
1989 -1990	401		401						401
1990 -1991	355		355						355
1991 -1992	412		412						412
1992 -1993	390		390						390
1993 -1994	428		428						428
1994 -1995	457		457						457
1995 -1996	533		533						533
1996 -1997	431		431						431
1997 -1998	421		421						421
1998 -1999	513		513						513
1999 -2000	500		500			5.3		0.5	494
2000 -2001	515		515			10.5		1.0	503
2001 -2002	530		530			15.8		1.5	513
2002 -2003	541		541			21.0		2.0	518
2003 -2004	551		551			26.3		2.5	522
2004 -2005	561		561			31.5		3.0	526
2005 -2006	573		573			36.8		3.5	533
2006 -2007	588		588			36.8		3.5	548
2007 -2008	602		602			36.8		3.5	562
2008 -2009	615		615			36.8		3.5	575

[1] Values include DSM Impacts.

City Of Tallahassee

Schedule 3.2.2
History and Forecast of Winter Peak Demand
High Forecast
(MW)

(1) Year	(2) Total	(3) Wholesale	(4) Retail	(5) Interruptible	(6) Residential Load Management	(7) Residential Conservation	(8) Comm./Ind Load	(9) Comm./Ind Conservation	(10) [1] Net Firm Demand
1989 -1990	401		401						401
1990 -1991	355		355						355
1991 -1992	412		412						412
1992 -1993	390		390						390
1993 -1994	428		428						428
1994 -1995	457		457						457
1995 -1996	533		533						533
1996 -1997	431		431						431
1997 -1998	421		421						421
1998 -1999	513		513						513
1999 -2000	526		526			5.3		0.5	520
2000 -2001	547		547			10.5		1.0	535
2001 -2002	568		568			15.8		1.5	550
2002 -2003	585		585			21.0		2.0	562
2003 -2004	600		600			26.3		2.5	571
2004 -2005	616		616			31.5		3.0	581
2005 -2006	633		633			36.8		3.5	593
2006 -2007	649		649			36.8		3.5	609
2007 -2008	663		663			36.8		3.5	623
2008 -2009	676		676			36.8		3.5	636

[1] Values include DSM Impacts.

City Of Tallahassee

Schedule 3.2.3
History and Forecast of Winter Peak Demand
Low Forecast
(MW)

(1) Year	(2) Total	(3) Wholesale	(4) Retail	(5) Interruptible	(6) Residential Load Management	(7) Residential Conservation	(8) Comm./Ind Load	(9) Comm./Ind Conservation	(10) [1] Net Firm Demand
1989 -1990	401		401						401
1990 -1991	355		355						355
1991 -1992	412		412						412
1992 -1993	390		390						390
1993 -1994	428		428						428
1994 -1995	457		457						457
1995 -1996	533		533						533
1996 -1997	431		431						431
1997 -1998	421		421						421
1998 -1999	513		513						513
1999 -2000	481		481			5.3		0.5	475
2000 -2001	502		502			10.5		1.0	490
2001 -2002	522		522			15.8		1.5	505
2002 -2003	539		539			21.0		2.0	516
2003 -2004	555		555			26.3		2.5	526
2004 -2005	570		570			31.5		3.0	536
2005 -2006	588		588			36.8		3.5	548
2006 -2007	604		604			36.8		3.5	563
2007 -2008	618		618			36.8		3.5	577
2008 -2009	631		631			36.8		3.5	590

[1] Values include DSM Impacts.

City Of Tallahassee

Schedule 3.3.1
History and Forecast of Annual Net Energy for Load
Base Forecast
(GWH)

(1) Calendar Year	(2) Total Sales	(3) Residential Conservation	(4) Comm./Ind Conservation	(5) [1] Retail Sales	(6) Wholesale	(7) Utility Use & Losses	(8) [1] Net Energy for Load	(9) [1] Load Factor %
1990	1,822			1,822		81	1,903	54
1991	1,830			1,830		122	1,952	54
1992	1,857			1,857		123	1,980	55
1993	1,956			1,956		130	2,086	56
1994	2,016			2,016		134	2,150	53
1995	2,150			2,150		142	2,292	60
1996	2,221			2,221		147	2,368	54
1997	2,186			2,186		132	2,318	53
1998	2,349			2,349		128	2,477	58
1999	2,358			2,358		139	2,497	54
2000	2,395	6.3	1.7	2,387		158	2,545	57
2001	2,466	12.7	3.5	2,450		162	2,612	57
2002	2,542	19.0	5.0	2,518		167	2,685	57
2003	2,602	25.4	6.8	2,570		170	2,740	57
2004	2,658	31.7	8.4	2,618		173	2,791	57
2005	2,712	38.1	10.2	2,664		176	2,840	57
2006	2,771	44.4	11.7	2,715		180	2,895	57
2007	2,831	44.4	11.7	2,775		184	2,959	57
2008	2,889	44.4	11.7	2,833		188	3,021	57
2009	2,941	44.4	11.7	2,885		191	3,076	57

[1] Values include DSM Impacts.

Table 2.10

City Of Tallahassee

Schedule 3.2.3
History and Forecast of Winter Peak Demand
Low Forecast
(MW)

(1) Year	(2) Total	(3) Wholesale	(4) Retail	(5) Interruptible	(6) Residential Load Management	(7) Residential Conservation	(8) Comm./Ind Load	(9) Comm./Ind Conservation	(10) [1] Net Firm Demand
1989 -1990	401		401						401
1990 -1991	355		355						355
1991 -1992	412		412						412
1992 -1993	390		390						390
1993 -1994	428		428						428
1994 -1995	457		457						457
1995 -1996	533		533						533
1996 -1997	431		431						431
1997 -1998	421		421						421
1998 -1999	513		513						513
1999 -2000	481		481			5.3		0.5	475
2000 -2001	502		502			10.5		1.0	490
2001 -2002	522		522			15.8		1.5	505
2002 -2003	539		539			21.0		2.0	516
2003 -2004	555		555			26.3		2.5	526
2004 -2005	570		570			31.5		3.0	536
2005 -2006	588		588			36.8		3.5	548
2006 -2007	604		604			36.8		3.5	563
2007 -2008	618		618			36.8		3.5	577
2008 -2009	631		631			36.8		3.5	590

[1] Values include DSM Impacts.

City Of Tallahassee

Schedule 3.3.3
History and Forecast of Annual Net Energy for Load
Low Forecast
(GWH)

(1) Calendar Year	(2) Total Sales	(3) Residential Conservation	(4) Comm./Ind Conservation	(5) [1] Retail Sales	(6) Wholesale	(7) Utility Use & Losses	(8) [1] Net Energy for Load	(9) [1] Load Factor %
1990	1,822			1,822		81	1,903	54
1991	1,830			1,830		122	1,952	54
1992	1,857			1,857		123	1,980	55
1993	1,956			1,956		130	2,086	56
1994	2,016			2,016		134	2,150	53
1995	2,150			2,150		142	2,292	60
1996	2,221			2,221		147	2,368	54
1997	2,186			2,186		132	2,318	53
1998	2,349			2,349		128	2,477	58
1999	2,358			2,358		139	2,497	54
2000	2,244	6.3	1.7	2,236		148	2,384	55
2001	2,313	12.7	3.5	2,297		152	2,449	54
2002	2,387	19.0	5.0	2,362		156	2,519	55
2003	2,444	25.4	6.8	2,412		160	2,572	54
2004	2,493	31.7	8.4	2,453		162	2,615	54
2005	2,544	38.1	10.2	2,496		165	2,662	54
2006	2,601	44.4	11.7	2,545		169	2,713	54
2007	2,659	44.4	11.7	2,603		172	2,775	55
2008	2,715	44.4	11.7	2,659		176	2,835	55
2009	2,765	44.4	11.7	2,709		179	2,888	54

[1] Values include DSM Impacts.

City Of Tallahassee

Schedule 4
Previous Year and 2-Year Forecast of Retail Peak Demand and Net Energy for Load by Month

(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Calendar 1999 Actual		Calendar 2000 [1] Forecast		Calendar 2001 [1] Forecast	
Month	Peak Demand MW	NEL GWH	Peak Demand MW	NEL GWH	Peak Demand MW	NEL GWH
January	513	196	521	200	535	205
February	421	170	427	173	439	178
March	356	176	362	180	372	185
April	402	192	408	196	420	201
May	455	207	462	211	475	216
June	481	226	488	230	502	236
July	522	253	530	258	545	265
August	526	271	534	277	549	284
September	490	231	497	236	511	242
October	401	202	408	205	419	211
November	351	176	356	179	366	184
December	410	197	416	201	428	206
TOTAL		2,497		2,545		2,612

[1] Peak Demand and NEL include DSM impacts.

City Of Tallahassee

1999 Electric System Load Forecast

Key Explanatory Variables

Model Name	Leon County Population	Residential Customers	Total Customers	Cooling Degree Days	Heating Degree Days	Tallahassee Taxable Sales	Price of Electricity	State of Florida Population	Minimum Winter Peak day Temp.	Maximum Summer Peak day Temp.	Appliance Saturation	[1] R Squared
Residential Customers	X											0.989
Residential Consumption		X		X	X	X	X				X	0.924
Florida State University Consumption				X			X	X				0.930
State Capitol Consumption				X			X	X				0.892
Florida A & M University Consumption				X				X				0.926
Street Lighting Consumption	X											0.961
General Service Non-Demand Customers		X										0.958
General Service Demand Customers		X										0.927
General Service Non-Demand Consumption				X	X	X	X					0.954
General Service Demand Consumption	X			X	X							0.966
General Service Large Demand Consumptio	X			X	X							0.974
Summer Peak Demand			X				X			X	X	0.982
Winter Peak Demand			X						X		X	0.965

[1] R Squared, sometimes called the coefficient of determination, is a commonly used measure of goodness of fit of a linear model. If the observations fall on the model regression line, R Squared is 1. If there is no linear relationship between the dependent and independent variable, R Squared is 0. A reasonably good R Squared value could be anywhere from 0.6 to 1.

Table 2.14

2000 Electric Load Forecast
Sources of Forecast Model Input Information

Energy Model Input Data	Source
1. Leon County Population	City Planning Office
2. Talquin Customers Transferred	City Power Engineering
3. Cooling Degree Days	NOAA reports
4. Heating Degree Days	NOAA reports
5. AC Saturation Rate	Residential Utility Customer Trends
6. Heating Saturation Rate	City Utility Research
7. Real Tallahassee Taxable Sales	Bureau of Economic and Business Research
8. Florida Population	Bureau of Economic and Business Research
9. State Capitol Incremental	Department of Management Services
10. FSU Incremental Additions	FSU Planning Department
11. FAMU Incremental Additions	FAMU Planning Department
12. GSLD Incremental Additions	City Utility Services
13. Other Commercial Customers	Utility Services
14. Tall. Memorial Curtailable	System Planning/ Utilities Accounting.
15. FSU 4th Meter Additions	System Planning/ Utilities Accounting.
16. State Capital Center 2 Special Accounts	Utilities Accounting
17. Customer Definitions	Utility Services
18. System Peak Historical Data	City System Planning
19. Historical Customer Projections by Class	System Planning & Customer Accounting
20. Historical Customer Class Energy	System Planning & Customer Accounting
21. GDP Forecast	Governor's Planning & Budgeting Office
22. CPI Forecast	Governor's Planning & Budgeting Office
23. Florida Taxable Sales	Bureau of Economic and Business Research
24. Interruptible, Traffic Light Sales, & Security Light Additions	System Planning & Customer Accounting
25. Historical Residential Real Price of Electricity	Utility Services
26. Historical Commercial Real Price Of Electricity	Utility Services

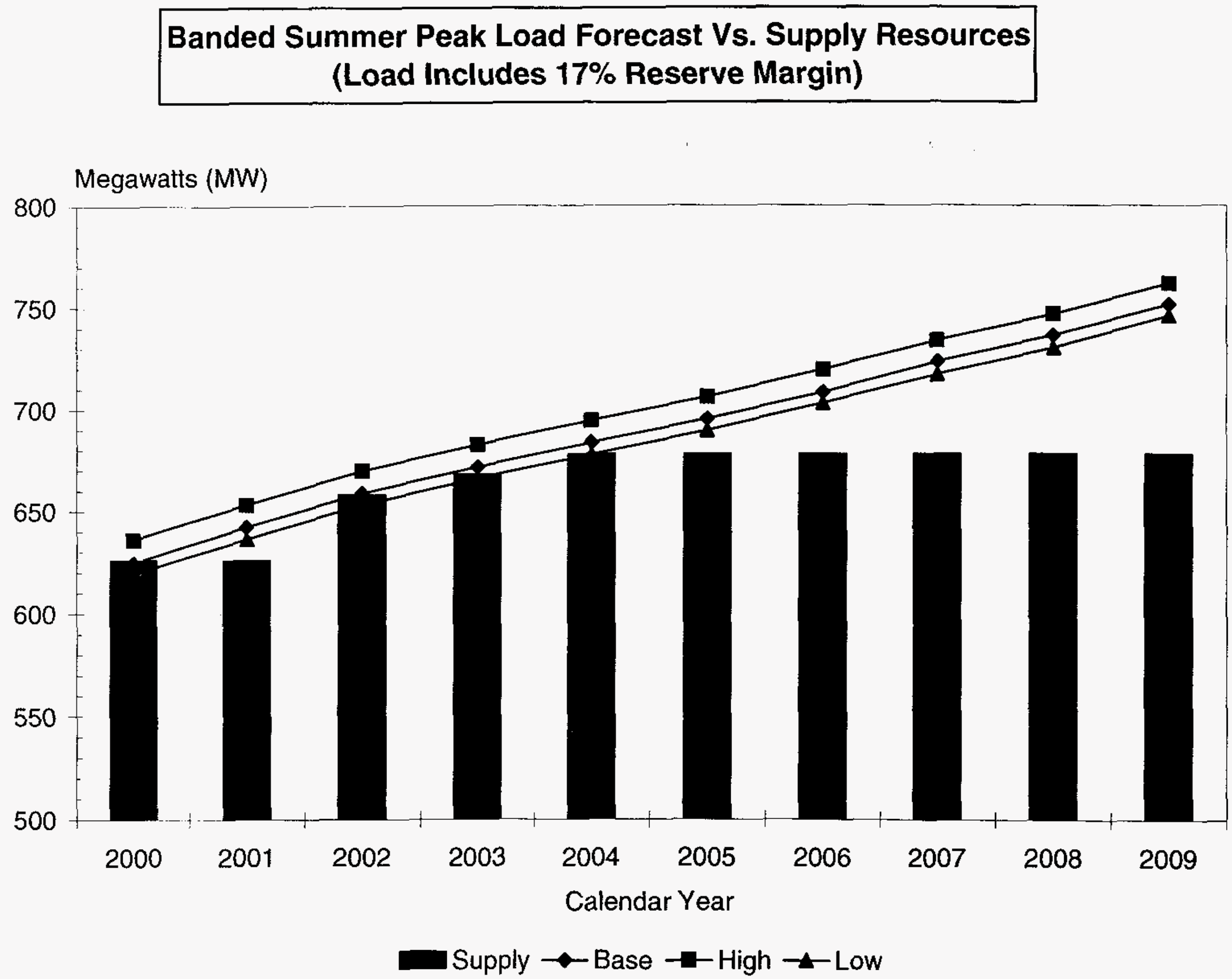

Banded Summer Peak Load Forecast Vs. Supply Resources
(Load Includes 17% Reserve Margin)
Megawatts (MW)
800
750
700
650
600
550
500
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
Calendar Year
Supply
Base
High
Low

Figure B3

City Of Tallahassee

2000 Electric System Load Forecast

Projected Demand Side Management
Energy Reductions

Calendar Year Basis

Calendar Year	Residential Impact (MWH)	Commercial Impact (MWH)	Total Impact (MWH)
2000	6,343	1,716	8,059
2001	12,687	3,516	16,203
2002	19,030	5,037	24,067
2003	25,373	6,837	32,210
2004	31,717	8,358	40,075
2005	38,060	10,158	48,218
2006	44,403	11,679	56,082
2007	44,403	11,679	56,082
2008	44,403	11,679	56,082
2009	44,403	11,679	56,082

City Of Tallahassee

2000 Electric System Load Forecast

Projected Demand Side Management
Seasonal Demand Reductions

Year		Residential Energy Efficiency Impact		Commercial Energy Efficiency Impact		Demand Side Management Total	
Summer	Winter	Summer (MW)	Winter (MW)	Summer (MW)	Winter (MW)	Summer (MW)	Winter (MW)
2000	1999/00	1.4	5.3	0.5	0.5	1.9	5.8
2001	2000/01	2.8	10.5	1.1	1.0	3.9	11.6
2002	2001/02	4.3	15.8	1.5	1.5	5.8	17.3
2003	2002/03	5.7	21.0	2.1	2.0	7.8	23.0
2004	2003/04	7.1	26.3	2.6	2.5	9.7	28.7
2005	2004/05	8.5	31.5	3.2	3.0	11.7	34.5
2006	2005/06	10.0	36.8	3.6	3.5	13.6	40.3
2007	2006/07	10.0	36.8	3.6	3.5	13.6	40.3
2008	2007/08	10.0	36.8	3.6	3.5	13.6	40.3
2009	2008/09	10.0	36.8	3.6	3.5	13.6	40.3

City Of Tallahassee

Schedule 5
Fuel Requirements

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
	Fuel Requirements		Units	Actual 1998	Actual 1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
(1)	Nuclear		Billion BTU	667	739										
(2)	Coal		1000 Ton												
(3)	Residual	Total	1000 BBL	11	76										
(4)		Steam	1000 BBL	11	76										
(5)		CC	1000 BBL												
(6)		CT	1000 BBL												
(7)		Diesel	1000 BBL												
(8)	Distillate	Total	1000 BBL												
(9)		Steam	1000 BBL												
(10)		CC	1000 BBL												
(11)		CT	1000 BBL												
(12)		Diesel	1000 BBL												
(13)	Natural Gas	Total	1000 MCF	17,151	17,448	17,981	18,760	19,354	20,527	21,067	21,979	22,012	22,600	23,144	23,652
(14)		Steam	1000 MCF	16,590	16,930	13,006	6,438	7,129	7,967	8,459	10,309	9,275	9,782	10,243	10,741
(15)		CC	1000 MCF			4,843	12,240	12,194	12,502	12,550	11,554	12,653	12,716	12,799	12,816
(16)		CT	1000 MCF	561	518	132	82	31	58	58	116	84	102	102	95
(17)	Other (Specify)		Trillion BTU												

Table 2.18

City Of Tallahassee

Schedule 6.1
Energy Sources

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
	Energy Sources		Units	Actual 1998	Actual 1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
(1)	Annual Firm Interchange		GWH	805	759	549	193	204	120	121	121	122	122	123	123
(2)	Nuclear		GWH	89	75										
(3)	Residual	Total	GWH	6	42										
(4)		Steam	GWH	6	42										
(5)		CC	GWH												
(6)		CT	GWH												
(7)		Diesel	GWH												
(8)	Distillate	Total	GWH												
(9)		Steam	GWH												
(10)		CC	GWH												
(11)		CT	GWH												
(12)		Diesel	GWH												
(13)	Natural Gas	Total	GWH	1,560	1,610	1,971	2,394	2,455	2,595	2,645	2,693	2,747	2,811	2,873	2,928
(14)		Steam	GWH	1,529	1,583	1,223	585	653	742	785	973	867	917	963	1,013
(15)		CC	GWH			740	1,804	1,800	1,849	1,856	1,714	1,875	1,888	1,903	1,908
(16)		CT	GWH	31	27	8	5	2	4	4	7	5	6	7	7
(17)	Other (Hydro)		GWH	17	11	25	25	25	25	25	25	25	25	25	25
(18)	Net Energy for Load		GWH	2,477	2,497	2,545	2,612	2,685	2,740	2,791	2,840	2,894	2,958	3,021	3,076

Notes:
1) Values for 1998 and 1999 include economy interchange
(2) Values for the perod 2000-2009 do not include economy interchange

Table 2.19

City Of Tallahassee

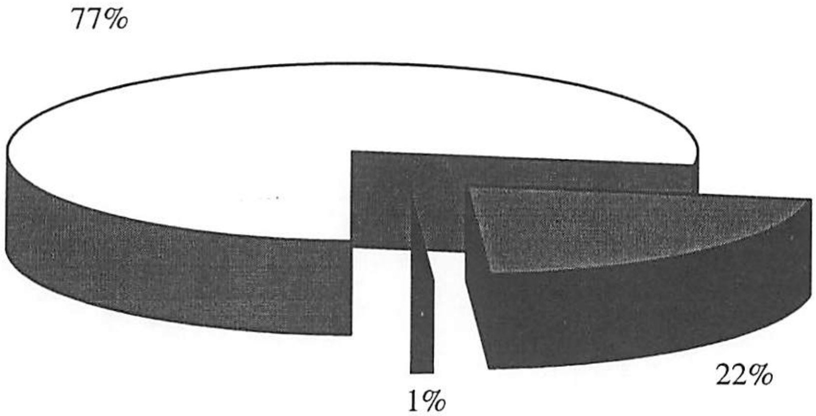
Schedule 6.2
Energy Sources

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
	Energy Sources		Units	Actual 1998	Actual 1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
(1)	Annual Firm Interchange		%	32.5	30.4	21.6	7.4	7.6	4.4	4.3	4.3	4.2	4.1	4.1	4.0
(2)	Nuclear		%	3.6	3.0										
(3)	Residual	Total	%	0.2	1.7										
(4)		Steam	%	0.2	1.7										
(5)		CC	%												
(6)		CT	%												
(7)		Diesel	%												
(8)	Distillate	Total	%												
(9)		Steam	%												
(10)		CC	%												
(11)		CT	%												
(12)		Diesel	%												
(13)	Natural Gas	Total	%	63.0	64.5	77.4	91.6	91.5	94.7	94.8	94.8	94.9	95.0	95.1	95.2
(14)		Steam	%	61.7	63.4	48.1	22.4	24.3	27.1	28.1	34.3	29.9	31.0	31.9	32.9
(15)		CC	%			29.1	69.1	67.1	67.5	66.5	60.3	64.8	63.8	63.0	62.0
(16)		CT	%	1.3	1.1	0.3	0.2	0.1	0.1	0.1	0.3	0.2	0.2	0.2	0.2
(17)	Other (Hydro)		%	0.7	0.4	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.8	0.8	0.8
(18)	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

Notes:
(1) Values for 1998 and 1999 include economy interchange
(2) Values for the period 2000-2009 do not include economy interchange

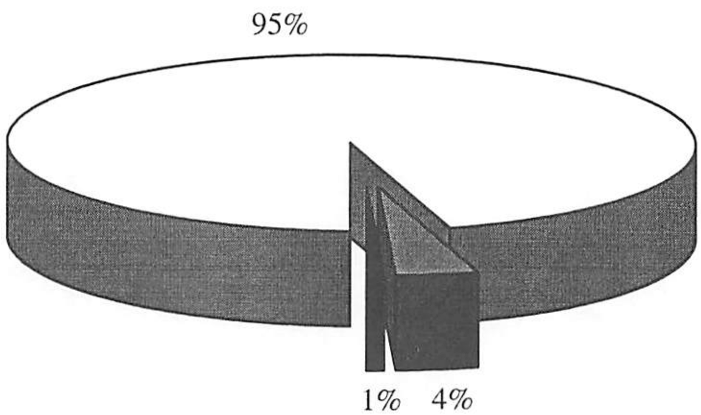
Generation By Fuel Type

Calendar Year 2000



Total 2000 NEL = 2,545 GWh

Calendar Year 2009



Total 2009 NEL = 3,076 GWh

☐ Gas and Oil ▩ Purchases ■ Hydro

Chapter III

Projected Facility Requirements

3.0 Introduction

The review and approval by the City Commission of the electric utility's recommended resource plan is guided by the objectives in the City's Energy Policy:

> It is the policy of the City of Tallahassee to provide a reliable, economically-competitive energy system which meets citizens' energy needs and reduces total energy requirements. These requirements will be reduced through energy conservation, public education, and appropriate technologies. The energy system will protect and improve the quality of life and the environment.

3.1 Projected Resource Requirements

Through its planning efforts, the City recognized that an additional resource(s) would be required to meet the large capacity shortfall anticipated in the summer of 2000 to maintain a reliable electric system. The City engaged in a comprehensive integrated resource planning and procurement process with the intent of acquiring a resource(s) that could reliably meet the City's needs at the lowest cost to its customers. This planning and procurement process included a Needs Determination hearing with the Florida Public Service Commission, Site Certification, and a market power cost study.

The result of this process was the decision to build a 233 MW (summer rating on gas, 238 MW on oil) combined-cycle unit (Purdom Unit 8) and retire Purdom units 5 & 6. The construction of the new combined-cycle unit is nearing completion. Testing of the new unit is to be conducted in April and May 2000 with commercial operation expected by May 2000. (See Table 3.3 for details on these facility changes.)

Based on the 1999 Load Forecast, it was determined that with the completion of Purdom Combined Cycle Unit #8, the retirement of Purdom Steam Units #5 and #6, the termination of the 79 MW purchased power contract with the Southern Company (scheduled for June 1, 2000), and continued load growth, the City would be able to maintain its 17% load reserve margin criterion through the winter of 2005/06. It was also based on last year's forecast that the City entered into a short-term firm power sales agreement with the Seminole Electric Cooperative, Incorporated (Seminole). The agreement provides Seminole with 75 MW of year-round capacity and associated energy for the period of May 2000 through November 30, 2001 and is contingent on the availability of Purdom 8. An additional 50 MW was sold to Seminole for the period of December 1, 2000 to March 31, 2001 on the condition that the City's Hopkins Unit #2 is available.

Comparing the capability of City's supply resources without any subsequent additions to its 2000 Load Forecast, Seminole sale obligation and 17% load reserve margin criterion, a capacity shortfall of 14 MW occurs in the summer of 2001. The City is in the process of carefully reviewing its options to meet this previously unexpected shortfall. One consideration will be the actual versus forecast generating capability of Purdom 8. Other possibilities include existing generation capability enhancements and peak-season purchases from other sources. The City will continue to review its options as the year progresses and as experience is gained with Purdom 8.

After the expiration of the Seminole power sales agreement, the City would be able to maintain it 17% load reserve margin criterion through the winter of 2003/04. The cumulative shortfall during the reporting period covered by this Ten Year Site Plan (beyond that forecasted to occur in 2001 discussed above and considering only existing resources) is shown in the table below:

Cumulative Capacity Shortfall (17% Reserve Margin)	
Year	***MW***
2004	*5*
2005	*16*
2006	*30*
2007	*44*
2008	*67*
2009	*92*

The shortfalls in the summers of 2004 and 2005 may be met with peak-season purchases from other systems. The larger, long-term needs, increased by the planned retirements of Purdom Combustion Turbine Units #1 and #2 in 2008 and 2009, respectively, are expected to require more significant supply resource acquisitions such as multi-year power purchases and/or new plant construction. The City intends to conduct a comprehensive resource planning study to identify alternatives that are consistent with the objectives of the City's Energy Policy stated in Section 3.0.

3.2 PLANNING PROCESS

3.2.1 PURDOM 8 NEED STUDY

On December 20, 1996, the City filed a Petition to Determine Need for Electrical Power Plant with the Florida Public Service Commission. As part of this filing, the City prepared the Purdom Unit 8 Need Study. This study described the planning process employed by the City in its selection of a resource plan which includes the addition of a Combined Cycle unit at the Purdom Station in the year 2000. The following is an excerpt from the Need Study:

> In late 1993, the City recognized that an opportunity would exist at the termination of the Southern Company contract to reduce the cost of supplying power to its customers. Improvements in generating technology made it clear that a new gas-fired generator could be installed and operated for significantly less than the price being paid for purchased power. The City began the process of screening various generating technologies and other resources for evaluation in an Integrated Resource Planning ("IRP") study.
>
> The City's Initial IRP Study, completed in May, 1995, showed that the optimal resource type for meeting the year 2000 need would be a combination of demand side management programs and a long-term base-load-type supply resource, most likely using gas-fired combined-cycle technology. In order to determine the most cost-effective alternative for meeting the year 2000 need, the City conducted a competitive Request for Proposals (RFP) process in parallel with the development and evaluation of self-build options.
>
> On August 31, 1995, the City released an RFP for the supply of electric capacity and energy. This RFP solicited proposals for purchased power and/or generating projects in amounts from 10 MW to 250 MW. Including five external proposals, and two alternatives proposed by the City, a total of 1,410 MW was submitted in response to the request for up to 250 MW of supply-side resources. All of these proposals included gas-

fired capacity, and some also included options for additional purchased power.

After an extensive evaluation process, the City selected the Purdom Unit 8 alternative as the best economic choice for meeting the year 2000 need for power. This unit has a guaranteed heat rate of 7,040 Btu/kWh at an ambient temperature of 95 degrees F. The total construction cost of Purdom Unit 8 is approximately $434/kW exclusive of contingency, capitalized interest, and transmission upgrades (and based on a rating of 251,054 kW at ISO conditions). Under base case planning assumptions, the resource plan including Purdom Unit 8 produces savings of approximately $91 million in present worth of revenue requirements (PWRR) over a 20-year period compared to the next best alternative identified through the RFP process. The Purdom Unit 8 plan also performs best under a wide range of alternative future scenarios.

In addition, the Need Study discusses the load forecast, DSM plan, reliability considerations, potential consequences of delay of the project, consistency with statewide need, and the environmental benefits of Purdom Unit 8.

Following hearings, the Florida Public Service Commission (FPSC) announced, in an order issued June 9, 1997, that the City's petition for determination of need for Purdom Unit 8 should be granted. Since that date, the City has completed a study of the power markets which verified the economics of Purdom Unit 8. On April 28, 1998, the City received approval from the Governor and Cabinet of the Site Certification Application.

3.2.2 FUTURE CONSIDERATIONS

Tables 3.1 and 3.2 (Schedules 7.1 and 7.2) provide information on the resources and reserve margins during the next ten years for the City's system. The City currently plans its system to maintain a load reserve margin of at least 17% but is giving consideration to the possibility of increasing its load reserve margin criterion in the future.

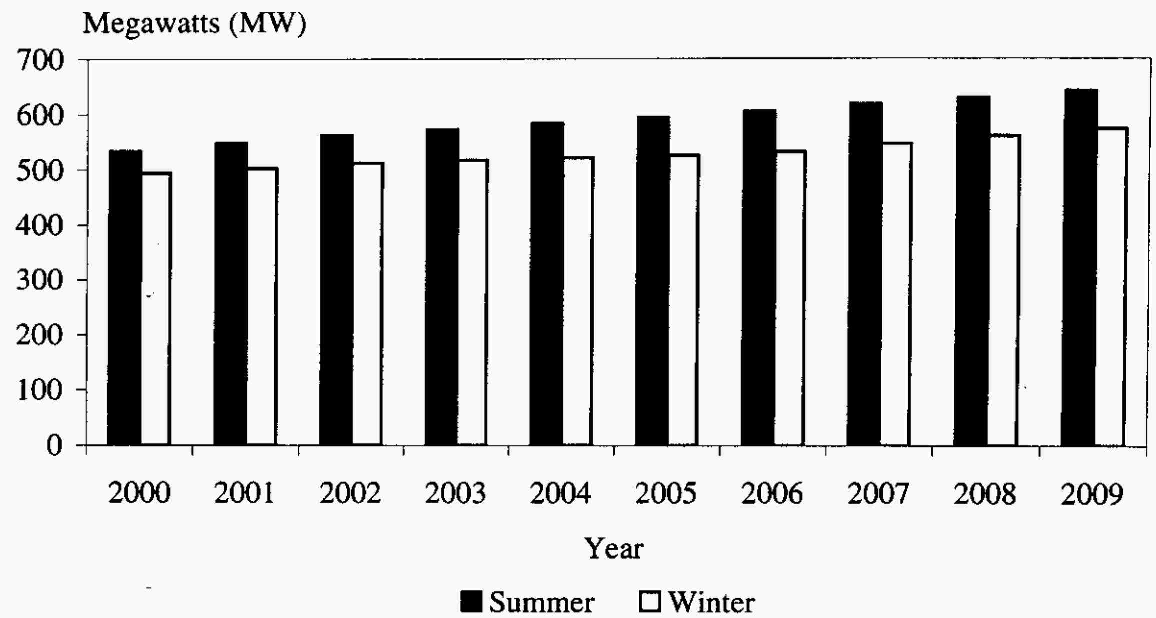
As a result of its Docket #981890-EU and subsequent Order #PSC- 99-2507-S-EU regarding the adequacy of reserve margins planned for Peninsular Florida, the FPSC approved a stipulation proposed by the three investor-owned utilities (IOU) for their voluntary adoption of a planning reserve margin criterion of 20%. These utilities (Florida

Power and Light, Florida Power Corporation and Tampa Electric Company) proposed to achieve this 20% margin by the summer of 2004. The FPSC noted that these three utilities plan for 80% of the load in Peninsular Florida and that the increase in reserve margin for the three utilities addressed the FPSC's basic concern about the adequacy of planned reserve margins for the region.

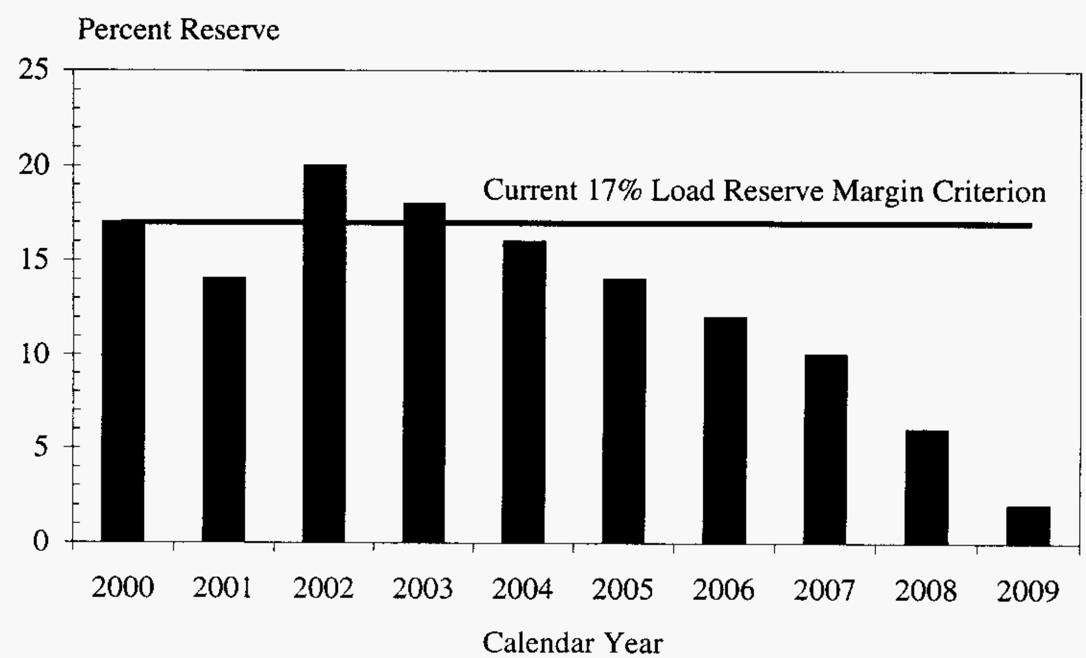
The FPSC's Docket and subsequent Order on planned reserve margins has provided the City with a valuable opportunity to review the adequacy of its own planning reserve margin criterion. In its future analyses the City will be giving careful consideration to, among any other yet unidentified issues, the implications of the FPSC's endorsement of the IOU's 20% reserve margin criterion, the nature of the City's interconnections with other utilities and subsequent import limitations, the increase in the City's forecast peak load requirements versus previous year's forecasts, and the size of the City's individual generating units as a percent of its total supply resource capability.

The City has specified its planned capacity additions, retirements and changes on Table 3.3 (Schedule 8). These capacity resources have been incorporated into the City's dispatch simulation model in order to provide information related to fuel consumption and energy mix (see Tables 2.18, 2.19 and 2.20). Figure C compares seasonal net peak load and the system reserve margin based on summer peak load requirements. Table 3.4 provides the City's generation expansion plan, including the addition of Purdom Unit 8 in 2000. The additional supply capacity required to maintain the City's current 17% reserve margin criterion is included in the "Resource Additions" column. As discussed in Section 3.1 above, the City intends to conduct a comprehensive resource planning study to identify expansion alternatives that are consistent with the objectives of the City's Energy Policy stated in Section 3.0.

System Peak Demands Net of Conservation



Summer Reserve Margin



City Of Tallahassee

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)
Calendar Year	Total Installed Capacity MW	Firm Capacity Import MW	Firm Capacity Export MW	QF MW	Total Capacity Available MW	System Firm Summer Peak Demand MW	Reserve Margin Before Maintenance MW	Reserve Margin Before Maintenance % OF PK	Scheduled Maintenance MW	Reserve Margin After Maintenance MW	Reserve Margin After Maintenance % OF PK
2000	667	34	75	0	626	534	92	17	0	92	17
2001	667	34	75	0	626	549	77	14	0	77	14
2002	667	11	0	0	678	563	115	20	0	115	20
2003	667	11	0	0	678	574	104	18	0	104	18
2004	667	11	0	0	678	584	94	16	0	94	16
2005	667	11	0	0	678	594	84	14	0	84	14
2006	667	11	0	0	678	605	73	12	0	73	12
2007	667	11	0	0	678	618	60	10	0	60	10
2008	657	11	0	0	668	629	39	6	0	39	6
2009	647	11	0	0	658	642	16	2	0	16	2

City Of Tallahassee

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		Total Capacity Available	System Firm Winter Peak Demand	Reserve Margin Before Maintenance		Scheduled Maintenance	Reserve Margin After Maintenance	
Year	MW	MW	MW	QF MW	MW	MW	MW	% OF PK	MW	MW	% OF PK
1999/00	449	128	10	0	567	500	67	13	0	67	13
2000/01	711	34	125	0	620	515	105	20	0	105	20
2001/02	711	34	0	0	745	530	215	41	0	215	41
2002/03	711	11	0	0	722	541	181	33	0	181	33
2003/04	711	11	0	0	722	551	171	31	0	171	31
2004/05	711	11	0	0	722	561	161	29	0	161	29
2005/06	711	11	0	0	722	573	149	26	0	149	26
2006/07	711	11	0	0	722	588	134	23	0	134	23
2007/08	711	11	0	0	722	602	120	20	0	120	20
2008/09	701	11	0	0	712	615	97	16	0	97	16

City Of Tallahassee

Schedule 8
Planned and Prospective Generating Facility Additions and Changes

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
	Unit		Unit	Fuel		Fuel Transportation		Const. Start	Commercial In-Service	Expected Retirement	Gen. Max. Nameplate	Net Capability [2]		
Plant Name	No.	Location	Type	Pri	Alt	Pri	Alt	Mo/Yr	Mo/Yr	Mo/Yr	kW	Summer MW	Winter MW	Status
Purdom [1]	8	Wakulla Co.	CC	NG	FO2	PL	TK	N/A	5/15/00		259,800	233	262	V

Notes: [1] Unit No. 8 is currently under construction, more than 50% completed.
[2] Summer net capability on oil expected to be 238 MW.

City Of Tallahassee

Generation Expansion Plan

Year	Load Fcst & Adj. Fcst Peak Demand	DSM (1)	Net Peak DMD	Existing Capacity Net	Firm Imports	Firm Exports		Resource Additions (Cumulative)		Total Capacity	Res %	New Resources
2000	536	2	534	667	34	75	(2)			626	17	
2001	553	4	549	667	34	75	(2)	14	(3)	640	17	
2002	569	6	563	667	11					678	20	
2003	582	8	574	667	11					678	18	(3)
2004	594	10	584	667	11			5	(3)	683	17	(3)
2005	606	12	594	667	11			16	(3)	694	17	(3)
2006	619	14	605	667	11			30	(3)	708	17	(3)
2007	632	14	618	667	11			44	(3)	722	17	(3)
2008	643	14	629	657	11			67	(3)	735	17	(3)
2009	656	14	642	647	11			92	(3)	750	17	(3)

NOTES:

(1) DSM = Demand Side Management

(2) Reflects unit-specific capacity sold to Seminole Electric Cooperative, Incorporated.

(3) Peak season/multi-year purchases and/or generation capacity enhancements/additions will be made as necessary to compensate for capacity shortfalls currently projected for 2001 and 2004-2009 to maintain at least a 17% reserve margin.

Chapter IV

Proposed Plant Sites and Transmission Lines

4.1 PROPOSED PLANT SITE

As identified in Chapter III, the Need Study, the subsequent order from the Florida Public Service Commission, and finally the market power cost study indicated that the least-cost generation expansion plan includes the development of the combined-cycle plant at the Purdom Generating Station in St. Marks, Florida. This section will describe that plant, its site, and related transmission improvements.

4.1.1 DESCRIPTION OF NEW POWER PLANT

The power plant (currently under construction, and to be designated "Purdom Unit 8") is comprised of an advanced technology gas turbine in a combined-cycle configuration. In this configuration, the City will enjoy the highest efficiency available in a large central station facility. The unit has a guaranteed summer rating of 232,900 kW and 7,040 Btu/kWh at 95°F, 50% Relative Humidity, and at the Higher Heating Value (HHV) of gas. The summer output is expected to be 238 MW on oil. With the addition of this unit, the City will be able to retire Purdom Units 5 & 6 early, and reduce the utilization of Purdom Unit 7. As a result of these early retirements and reduced utilization, the City's electrical demand will be met at a reduced cost and with a significantly improved environmental profile. This alternative is expected to provide the following benefits:

Financial Benefits:

- The addition of Unit 8 will make a significant improvement in system efficiency. Unit 8 has an average heat rate of 6,960 btu/kWh, which is 39% better than the City's fiscal year 1994 average annual heat rate of 11,400 btu/kWh.
- The project utilizes existing facilities in lieu of developing a new site.
- The debt service payments for the new unit are lower than the capacity payments historically paid by the City for 100 MW of coal-fired capacity from Southern Company.
- The City's wholesale competitiveness will be improved through higher efficiency.

Environmental Benefits:

- A "zero discharge" water treatment plant will be installed to significantly improve the environmental impact on the St. Marks River. This treatment facility will allow elimination of the existing low volume waste (LVW) discharge and metal cleaning waste (MCW) discharge. The zero discharge treatment plant will also allow all of the City of St. Marks sewage treatment plant effluent to be used as make-up to the Unit 8 cooling tower. This will eliminate an existing waste stream discharge to the St. Marks River.
- Thermal discharge to the St. Marks River will be reduced through the early retirement of Units 5 & 6. There is no additional thermal discharge from Unit 8 due to the use of a cooling tower and the zero discharge facility.
- Best Available Control Technology (BACT) for NO_x control will be used.
- Natural gas will be utilized as the primary fuel. Clean, low sulfur (0.05%) #2 fuel oil will only be used as the backup fuel. The current expectation is that utilization of #2 fuel oil will be less than 1,000 hours annually.
- There will be a net reduction in permitted air emissions through retirement of Units 5 & 6, and reduced utilization of Unit 7 coupled with the excellent performance of Unit 8. NO_x and SO_2 emissions from Unit 8 are expected to be at or below the actual NO_x and SO_2 emissions from the Purdom Plant in the past 2 years. There will be some increase in actual amounts for other pollutants but the ambient air quality impacts will be below the allowable standards.
- Groundwater withdrawal from the existing Purdom wells will be eliminated.
- The project utilizes existing transmission rights-of-way and voltages, and thereby does not require acquisition and clearing of additional rights-of-way.

St. Marks Community Benefits:

- The St. Marks River environment will be improved through the elimination of the Purdom LVW and MCW discharges, of thermal discharge from Units 5 & 6, and of the discharge of the City of St. Marks sewage treatment plant to the river.
- Aesthetics along the St. Marks River will be improved.
- The project will utilize the City of St. Marks potable water system for supplemental process water.
- The project makes the existing water high tank available to the City of St. Marks for additional storage.

4.1.2 PLANT SITE

The new power plant is being constructed at the Purdom Generating Station in St. Marks, Florida, approximately 25 miles south of Tallahassee, in Wakulla County. This generating station currently consists of one steam electric units and two gas combustion turbine units. Steam Unit No. 7 is rated at 48 MW and can burn either natural gas or No. 6 fuel oil. The two gas turbines are rated at 10 MW each, and are used for peaking. They can burn either gas or No. 2 fuel oil. As planned the former Steam Units No. 5 and 6, rated at 24 MW each, were placed on cold standby in October of 1999 (retirement Spring 2000). Unit 7 and the gas turbines will remain in operation until later dates.

Purdom Unit 8 will be a 233 MW (summer rating on gas, 238 MW on oil) combined cycle unit and is expected to be primarily base-loaded. Specifications for the proposed plant are shown on Table 4.1 (Schedule 9). A site map is included as Figure D1.

Unit 8 is located west of the Unit 7 Discharge Canal, to the south of the Plant access road. The combustion turbine-generator (CT-G) and heat recovery steam generator (HRSG) are oriented north-south and adjacent to the discharge canal. The steam turbine-generator (ST-G) is west of the CT-G. The warehouse has been relocated and the cooling tower is located where the warehouse was previously. To fit the new unit on the site, the former gas yard had to be relocated. New Plant access roads along the west, south, and east perimeter of the new Unit 8 are under construction as of the time of this report. This site layout is consistent with the special development zone requirements of the St. Marks Land Development Code and avoids impacts to all existing on-site environmental features.

4.1.3 TRANSMISSION UPGRADES

The Purdom 8 project utilizes existing transmission rights-of-way and voltages, and thereby does not require acquisition and clearing of additional rights-of-way.

Specifications for the directly-associated transmission lines are shown on Table 4.2 (Schedule 10). In order to reliably carry the additional power in certain contingency situations from the Purdom site north to the City's service territory, the following transmission lines upgrades were determined as necessary:

Existing Line	Miles	Existing Conductor	Required Upgrade
Purdom - Sub 5	15	4/0 copper	477 ACSR
Purdom - Switch	15.6	4/0 copper	477 ACSR

4.2 TRANSMISSION LINE ADDITIONS

A study of the transmission system has identified a number of system improvements and additions that will be required to reliably serve future load. The attached transmission system map (Figure D2), shows the planned transmission additions covered by this Ten Year Site Plan.

The City plans several new substations on the east side of its system. These are intended to serve future load in this rapidly-growing area. The new substations (14, 17, 18) will be connected with 115 kV transmission, which is the standard voltage throughout the City's service territory. When complete, the area will be served by two reliable "loops" between substations 7 and 9, and between substations 9 and 5. The anticipated in-service dates for these new substations and lines are shown in Figure D2.

Other improvements to the transmission system will take the form of line upgrades. Specifically, the upgrade of the lines out of the Purdom Station (as described in section 4.1.3) were timed to be and are now in-service as planned prior to the May 2000 commission date for Purdom Unit 8.

City Of Tallahassee

Schedule 9
Status Report and Specifications of Proposed Generating Facilities

(1)	Plant Name and Unit Number:	Purdom Unit 8
(2)	Capacity	
	a.) Summer:	233 MW @ 95°F
	b.) Winter:	262 MW @ 40°F
(3)	Technology Type:	Combined Cycle
(4)	Anticipated Construction Timing	
	a.) Field Construction start - date: [1]	10/3/98
	b.) Commercial in-service date:	5/15/00
(5)	Fuel	
	a.) Primary fuel:	Natural Gas
	b.) Alternate fuel:	No. 2 Diesel Fuel
(6)	Air Pollution Control Strategy:	Natural Gas -- Dry Low Nox Combustor Technology Diesel -- Water Injection
(7)	Cooling Status:	Cooling Tower
(8)	Total Site Area: [2]	63 acres
(9)	Construction Status:	Planned
(10)	Certification Status:	Application Approved (3/28/98)
(11)	Status with Federal Agencies:	N/A
(12)	Projected Unit Performance Data	
	Planned Outage Factor (POF): [3]	Varies
	Forced Outage Factor:	5.0%
	Equivalent Availability Factor (EAF): [3]	Varies
	Resulting Capacity Factor (%): [3]	Varies
	Average Net Operating Heat Rate (ANOHR):	7,040 @ 95°F (HHV) 6,940 @ 40°F (HHV)
(13)	Projected Unit Financial Data	
	Book Life (Years)	30
	Total Installed Cost (In-Service Year $/kW)	$121,359,572
	Direct Construction Cost ($/kW): [4]	$434
	AFUDC Amount ($/kW):	$46
	Escalation ($/kW):	
	Fixed O & M ($kW-Yr):	
	Variable O & M ($/MWH):	
	K Factor:	

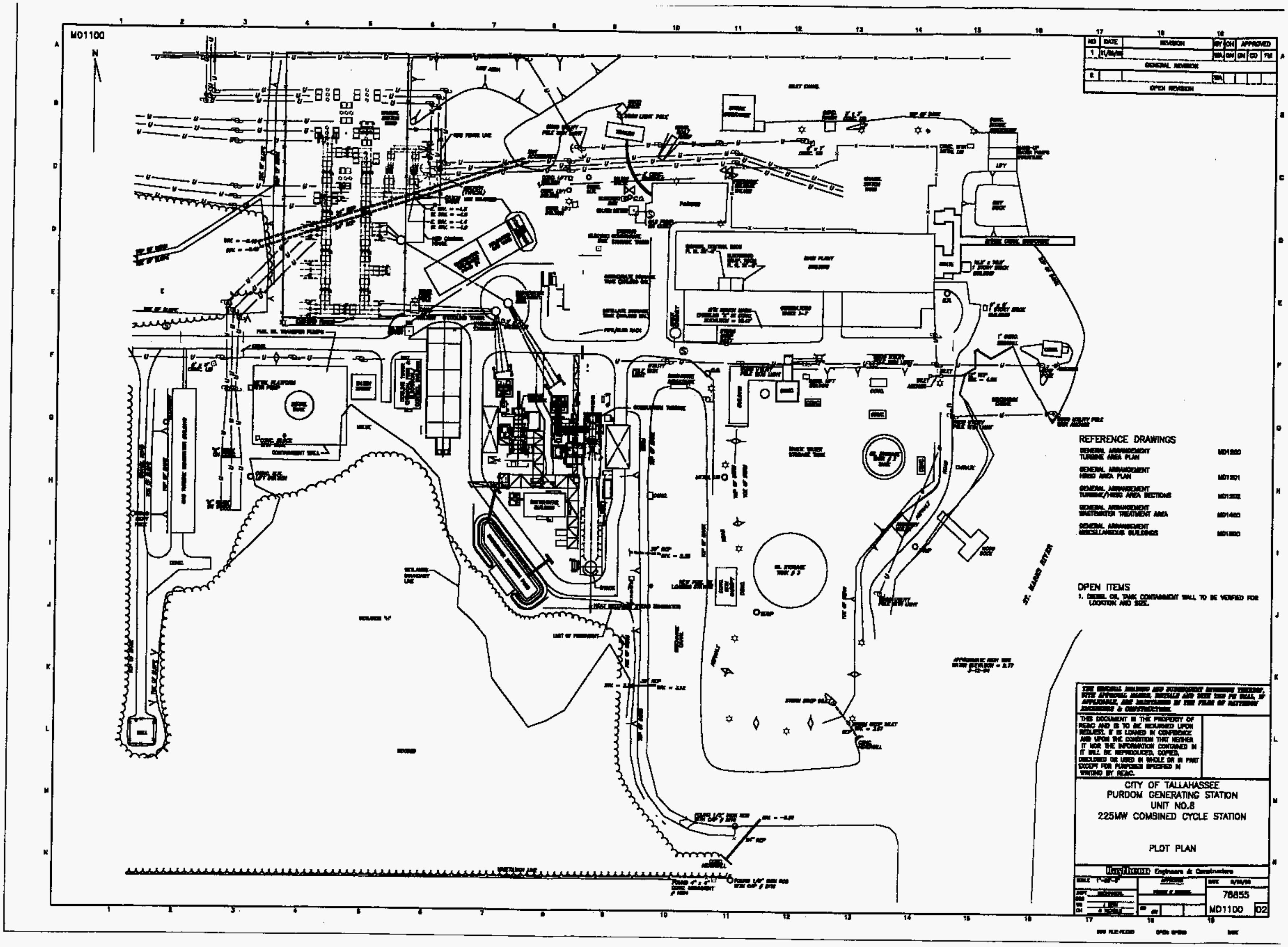
[1] Start engineering 3/31/98
[2] The site will be shared with 3 existing units. (Includes developed and undeveloped land)
[3] Scheduled Outage Information
Unit scheduled outages are on a 6 year schedule
- o combustor inspection -- years 1, 2, 4, 5 -- 5-7 days
- o hot gas path -- year 3 -- 14 days
- o major inspection -- year 6 -- 30 days

[4] $/kW is based on a rating of 251,054 kw at ISO conditions

City Of Tallahassee

Schedule 10
Status Report and Specifications of
Proposed Directly Associated Transmission Lines

(1)	Point of Origin and Termination:	Upgrade Purdom Plant to Tallahassee Switching Station and Purdom Plant to Substation No. 5
(2)	Number of Lines:	2
(3)	Right-of -Way:	N/A
(4)	Line Length:	N/A
(5)	Voltage:	N/A
(6)	Anticipated Capital Timing:	After 3/31/98
(7)	Anticipated Capital Investment:	$1,300,000 (For transmission line upgrades only)
(8)	Substations:	Switching Station and Substation No. 5
(9)	Participation with Other Utilities:	N/A



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CITY OF TALLAHASSEE
PURDOM GENERATING STATION
UNIT NO.8
225MW COMBINED CYCLE STATION
PLOT PLAN
Engineers & Constructors
76855
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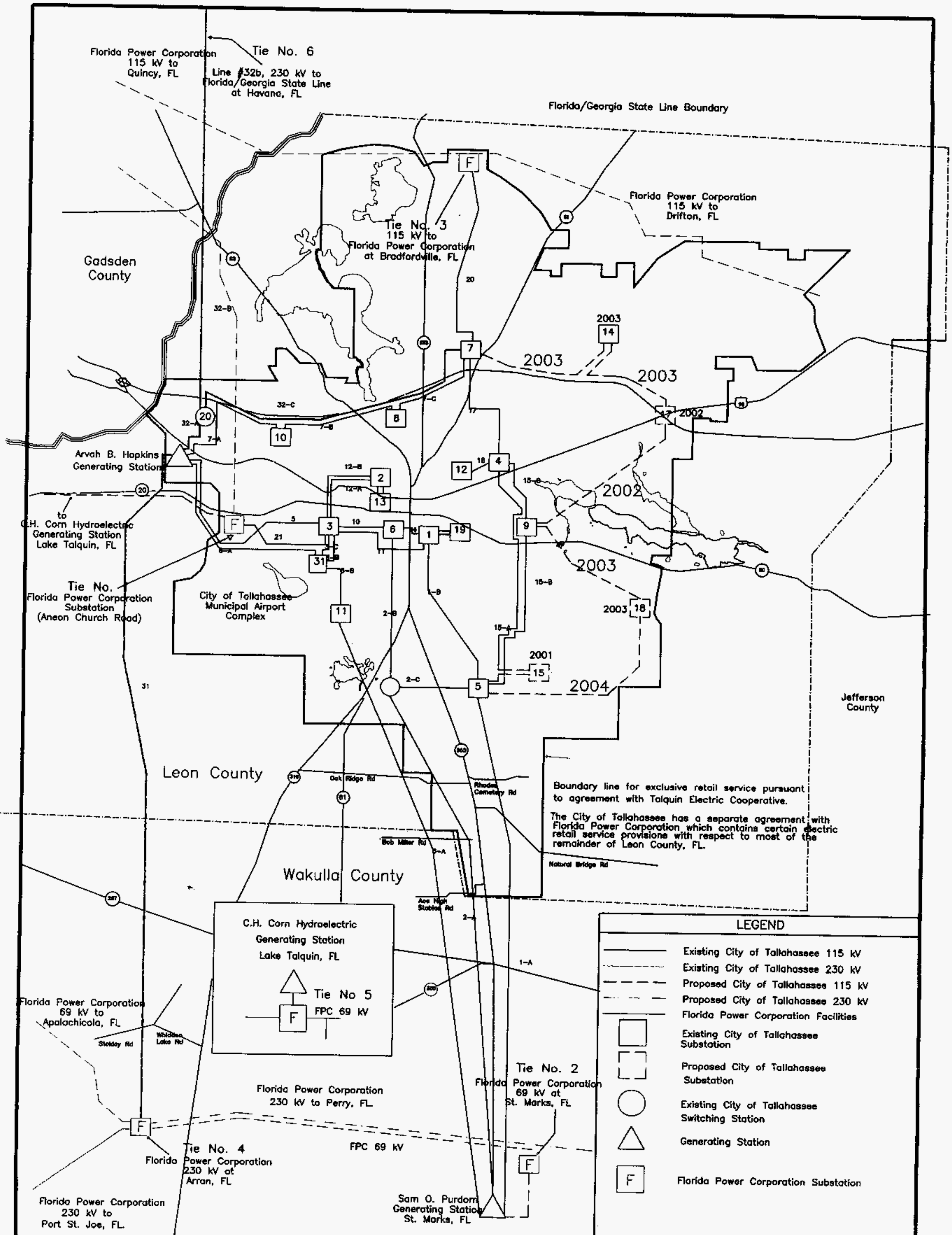

Plate II-1

revised 2/7/2000

City of Tallahassee

Electric Transmission System
January 1, 1999