



ORIGINAL

2602 Jackson Bluff Road, Tallahassee, Florida 32304, (850) 891-4YOU (4968), talgov.com

May 25, 2004

Ms. Blanca S. Bayó, Director  
Division of the Commission Clerk  
and Administrative Services  
Florida Public Service Commission  
2540 Shumard Oak Blvd.  
Tallahassee, FL 32399-0850

*undocketed*

RECEIVED-FPSC  
MAY 25 AM 10:02  
COMMISSION  
CLERK

Subject: Addendum to the City of Tallahassee's Ten-Year Site Plan

It has come to our attention that further data revision was necessary. All corresponding text, tables, charts and graphs were also modified. Enclosed is an addendum to the City of Tallahassee's 2004 Ten-Year Site Plan.

Sincerely,

*Venus Childs*

Venus Childs  
Planning Engineer

CMP \_\_\_\_\_

COM \_\_\_\_\_

CTR \_\_\_\_\_

ECR *Haff*

GCL \_\_\_\_\_

OPC \_\_\_\_\_

MMS \_\_\_\_\_

RCA \_\_\_\_\_

SCR \_\_\_\_\_

SEC 1

OTH *+cover ltr.  
2 to kim*

RECEIVED & FILED

*J*  
FPSC-BUREAU OF RECORDS

DOCUMENT NUMBER-DATE

05942 MAY 25 04  
Recycled Paper

FPSC-COMMISSION CLERK

**CITY OF TALLAHASSEE  
TEN YEAR SITE PLAN FOR ELECTRICAL GENERATING FACILITIES  
AND ASSOCIATED TRANSMISSION LINES  
2004-2013  
TABLE OF CONTENTS**

**I. Description of Existing Facilities**

1.0 Introduction..... 1  
 1.1 System Capabilities..... 1  
 1.2 Purchased Power Agreements..... 2  
 Table 1.1 FPSC Schedule 1 Existing Generating Facilities ..... 3

**II. Forecast of Energy/Demand Requirements and Fuel Utilization**

2.0 Introduction..... 4  
 2.1 System Demand and Energy Requirements ..... 4  
 2.1.1 System Load and Energy Forecasts ..... 4  
 2.1.2 Load Forecast Sensitivities ..... 6  
 2.1.3 Energy Efficiency and Demand Side Management Programs..... 6  
 2.2 Energy Sources and Fuel Requirements..... 7  
 Table 2.1 FPSC Schedule 2.1 History/Forecast of Energy Consumption (Residential and Commercial Classes)..... 9  
 Table 2.2 FPSC Schedule 2.2 History/Forecast of Energy Consumption (Industrial and Street Light Classes) ..... 10  
 Table 2.3 FPSC Schedule 2.3 History/Forecast of Energy Consumption (Utility Use and Net Energy for Load)..... 11  
 Figure B1 Energy Consumption by Customer Class (1994-2013) ..... 12  
 Figure B2 Energy Consumption: Comparison by Customer Class (2004 and 2013) ..... 13  
 Table 2.4 FPSC Schedule 3.1.1 History/Forecast of Summer Peak Demand – Base Forecast ..... 14  
 Table 2.5 FPSC Schedule 3.1.2 History/Forecast of Summer Peak Demand – High Forecast ..... 15  
 Table 2.6 FPSC Schedule 3.1.3 History/Forecast of Summer Peak Demand – Low Forecast..... 16  
 Table 2.7 FPSC Schedule 3.2.1 History/Forecast of Winter Peak Demand – Base Forecast..... 17  
 Table 2.8 FPSC Schedule 3.2.2 History/Forecast of Winter Peak Demand – High Forecast ..... 18  
 Table 2.9 FPSC Schedule 3.2.3 History/Forecast of Winter Peak Demand – Low Forecast ..... 19  
 Table 2.10 FPSC Schedule 3.3.1 History/Forecast of Annual Net Energy for Load – Base Forecast ..... 20  
 Table 2.11 FPSC Schedule 3.3.3 History/Forecast of Annual Net Energy for Load – Low Forecast..... 21  
 Table 2.12 FPSC Schedule 3.3.2 History/Forecast of Annual Net Energy for Load – High Forecast ..... 22  
 Table 2.13 FPSC Schedule 4 Previous Year Actual and Two Year Forecast Demand/Energy by Month ..... 23  
 Table 2.14 Load Forecast: Key Explanatory Variables ..... 24  
 Table 2.15 Load Forecast: Sources of Forecast Model Input Information..... 25  
 Figure B3 Banded Summer Peak Load Forecast vs. Supply Resources..... 26  
 Table 2.16 Projected DSM Energy Reductions ..... 27  
 Table 2.17 Projected DSM Seasonal Demand Reductions ..... 28  
 Table 2.18 FPSC Schedule 5.0 Fuel Requirements..... 29  
 Table 2.19 FPSC Schedule 6.1 Energy Sources (GWh) ..... 30  
 Table 2.20 FPSC Schedule 6.2 Energy Sources (%)..... 31  
 Figure B4 Generation by Fuel Type (2004 and 2013) ..... 32

DOCUMENT NUMBER-DATE

05942 MAY 25 08

FPSC-COMMISSION CLERK

**III. Projected Facility Requirements**

3.0	Introduction/City of Tallahassee Energy Policy.....	33
3.1	Planning Process.....	33
3.2	Projected Resource Requirements.....	34
3.2.1	Transmission Limitations.....	34
3.2.2	Reserve Requirements.....	35
3.2.3	Near Term Resource Additions.....	35
3.2.4	Purchased Power Alternatives.....	36
3.2.5	Renewable Resources.....	37
3.2.6	Future Power Supply Resources.....	37
Figure C	Seasonal Peak Demands and Summer Reserve Margins.....	40
Table 3.1	FPSC Schedule 7.1 Forecast of Capacity, Demand and Scheduled Maintenance at Time of Summer Peak ....	41
Table 3.2	FPSC Schedule 7.2 Forecast of Capacity, Demand and Scheduled Maintenance at Time of Winter Peak.....	42
Table 3.3	FPSC Schedule 8 Planned and Prospective Generating Facility Additions and Changes.....	43
Table 3.4	Generation Expansion Plan.....	44

**IV. Proposed Plant Sites and Transmission Lines**

4.1	Proposed Plant Site.....	45
4.2	Transmission Line Additions.....	45
Table 4.1	FPSC Schedule 9 Status Report and Specifications of Proposed Generating Facilities - CT.....	48
Table 4.2	FPSC Schedule 9 Status Report and Specifications of Proposed Generating Facilities - IC.....	49
Table 4.3	FPSC Schedule 9 Status Report and Specifications of Proposed Generating Facilities - IC.....	50
Table 4.4	FPSC Schedule 9 Status Report and Specifications of Proposed Generating Facilities - CC.....	51
Table 4.5	FPSC Schedule 10 Status Report and Spec. of Proposed Directly Associated Transmission Lines.....	52
Figure D1	Electric Transmission Map.....	53

**Appendix A**

Existing Generating Unit Operating Performance.....	A-1
Nominal, Delivered Residual Oil Prices Base Case.....	A-2
Nominal, Delivered Residual Oil Prices High Case.....	A-3
Nominal, Delivered Residual Oil Prices Low Case.....	A-4
Nominal, Delivered Distillate Oil and Natural Gas Prices Base Case.....	A-5
Nominal, Delivered Distillate Oil and Natural Gas Prices High Case.....	A-6
Nominal, Delivered Distillate Oil and Natural Gas Prices Low Case.....	A-7
Nominal, Delivered Coal Prices Base Case.....	A-8
Nominal, Delivered Coal Prices High Case.....	A-9
Nominal, Delivered Coal Prices Low Case.....	A-10
Nominal, Delivered Nuclear Fuel and Firm Purchases.....	A-11
Financial Assumptions Base Case.....	A-12
Financial Escalation Assumptions.....	A-13
Monthly Peak Demands and Date of Occurrence for 2001 – 2003.....	A-14
Historical and Projected Heating and Cooling Degree Days.....	A-15
Average Real Retail Price of Electricity.....	A-16
Loss of Load Probability, Reserve Margin, and Expected Unserved Energy Base Case Load Forecast.....	A-17

## 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 2004 Load Forecast and the Demand Side Management plan filed with the Florida Public Service Commission (FPSC) 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

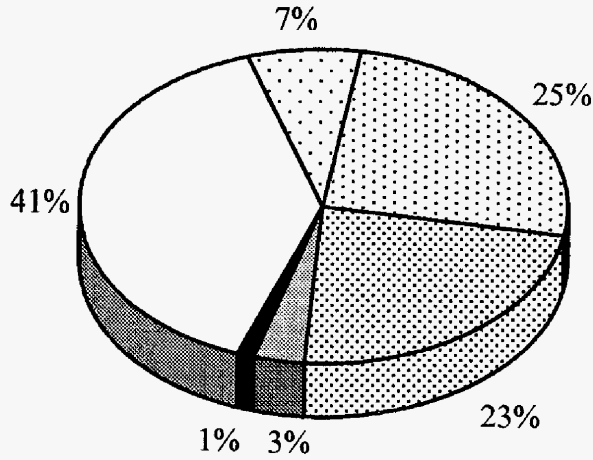
Historical and forecast energy consumption and customer information are presented in Tables 2.1, 2.2 and 2.3 (Schedules 2.1, 2.2, and 2.3). Figure B1 shows the historical and forecast trends of energy sales by customer class. Figure B2 shows the percentage of energy sales by customer class for the base year of 2004 and the horizon year of 2013. 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 2003 - 2005 period.

##### 2.1.1 SYSTEM LOAD AND ENERGY FORECASTS

The peak demand and energy forecasts contained in this plan are the results of the load and energy forecasting study performed by the City. The forecast is developed utilizing a methodology that the City first employed in 1980, and has updated and revised every one or two years. The methodology consists of approximately ten multi-variable linear regression models based on detailed examination of the system's historical growth, usage patterns and population statistics. Several key regression formulas utilize econometric variables.

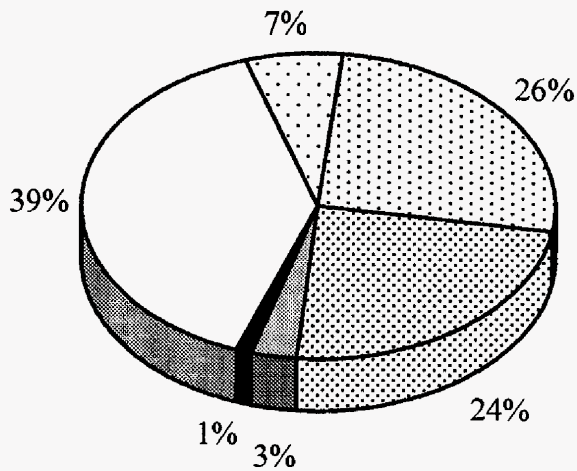
### Energy Consumption By Customer Class

#### Calendar Year 2004



Total 2004 Sales = 2,704 GWh  
Values exclude DSM impacts

#### Calendar Year 2013



Total 2013 Sales = 3,199 GWh  
Values exclude DSM impacts

□ Residential  
▣ Large Demand

▤ Non Demand  
▥ Curtail/Interrupt

▦ Demand  
■ Traffic/Street/Security Lights

**City Of Tallahassee**

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

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<u>Year</u>	<u>Total Sales</u>	Residential Conservation <u>[2]*</u>	Comm./Ind Conservation <u>[2]</u>	Retail Sales <u>[1]</u>	<u>Wholesale</u>	Utility Use <u>&amp; Losses</u>	Net Energy for Load <u>[1]</u>	Load Factor % <u>[1]</u>
1994	0	2,016	0	0	2,016	134	2,150	57
1995	0	2,150	0	0	2,150	142	2,292	53
1996	0	2,221	0	0	2,221	147	2,368	54
1997	0	2,186	0	0	2,186	132	2,318	54
1998	0	2,349	0	0	2,349	128	2,477	53
1999	0	2,358	0	0	2,358	139	2,497	54
2000	0	2,441	0	0	2,441	154	2,595	54
2001	0	2,431	0	0	2,431	125	2,556	56
2002	0	2,588	0	0	2,588	153	2,741	54
2003	0	2,613	10	0	2,603	153	2,756	57
2004		2,552	6	1	2,545	169	2,714	53
2005		2,626	12	3	2,611	173	2,784	54
2006		2,689	18	5	2,666	177	2,843	53
2007		2,748	18	5	2,725	181	2,906	54
2008		2,799	18	5	2,776	184	2,960	54
2009		2,848	18	5	2,825	187	3,012	54
2010		2,898	18	5	2,875	191	3,066	54
2011		2,947	18	5	2,924	194	3,118	55
2012		2,996	18	5	2,973	197	3,170	55
2013		3,045	18	5	3,022	200	3,222	55

[1] Values include DSM Impacts.

[2] Reduction estimated at customer meter. Previous year DSM is actual at peak.

City Of Tallahassee

**2004 Electric System Load Forecast**

**Key Explanatory Variables**

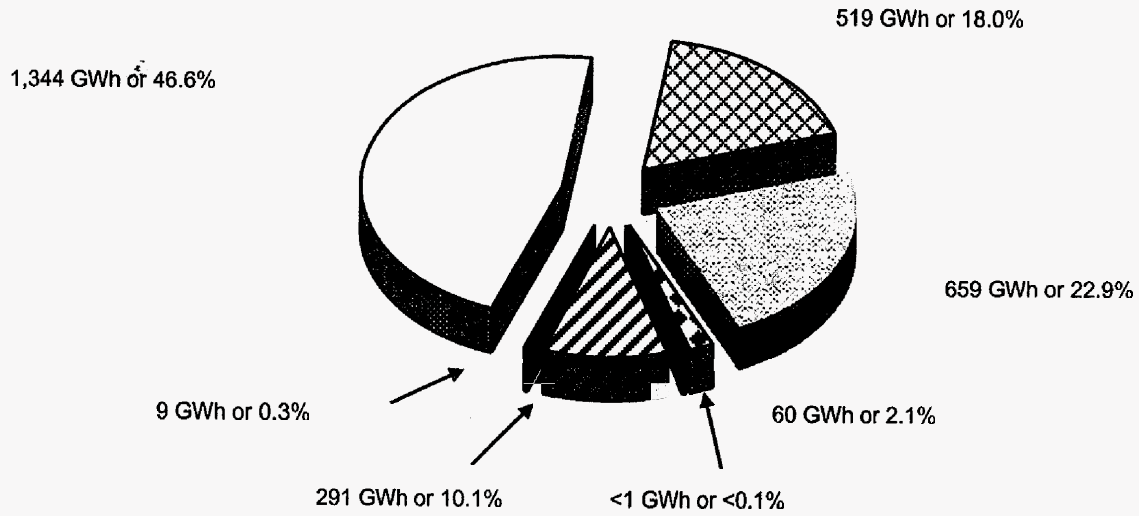
<u>Model Name</u>	<u>Leon County Population</u>	<u>Residential Customers</u>	<u>Total Customers</u>	<u>Cooling Degree Days</u>	<u>Heating Degree Days</u>	<u>Tallahassee Per Capita Taxable Sales</u>	<u>Price of Electricity</u>	<u>State of Florida Population</u>	<u>Minimum Winter Peak day Temp.</u>	<u>Maximum Summer Peak day Temp.</u>	<u>Appliance Saturation</u>	<u>R Squared [1]</u>
Residential Customers	X											0.989
Residential Consumption		X		X	X	X	X				X	0.921
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	X					0.961
General Service Demand Consumption	X			X	X							0.990
General Service Large Demand Consumption	X			X	X							0.974
Summer Peak Demand			X							X	X	0.982
Winter Peak demand									X		X	0.965

Notes

[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.

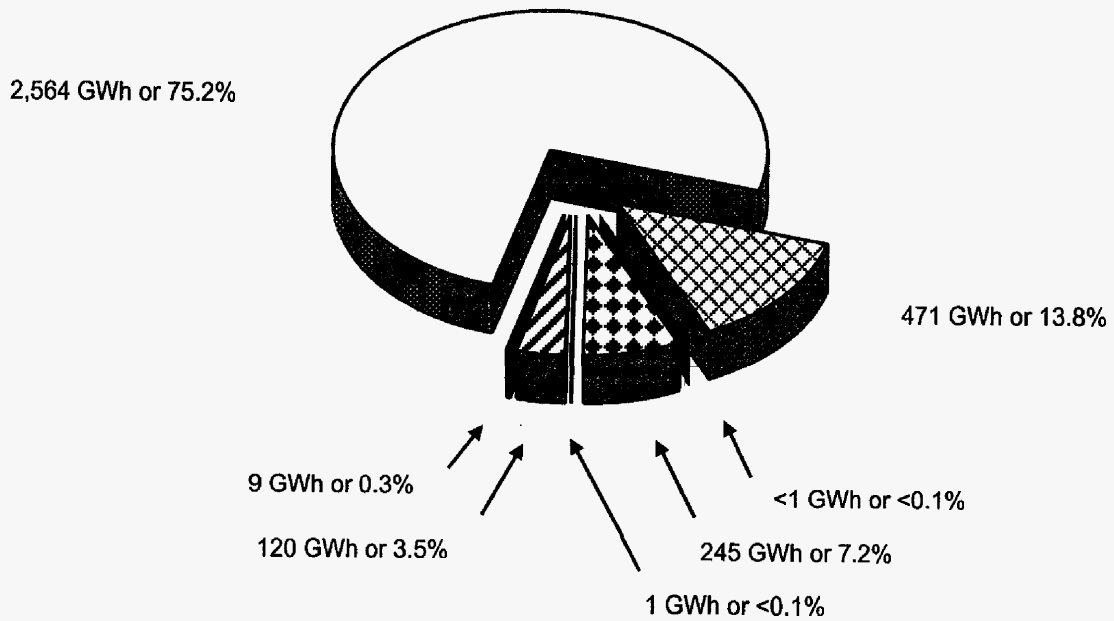
## Generation By Resource/Fuel Type

### Calendar Year 2004



Total 2004 NEL = 2,882 GWh

### Calendar Year 2013



Total 2013 NEL = 3,410

□ CC - Gas  
 ▣ Steam - Gas  
 ◊ Steam - Oil  
 ▤ CT/Diesel - Gas  
 ▥ CT/Deisel - Oil  
 ▧ Purch  
 ■ Hydro